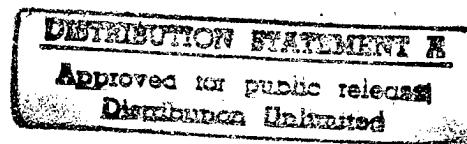


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Science & Technology

***Central Eurasia:
Life Sciences***

19980128 177

Science & Technology

Central Eurasia: Life Sciences

JPRS-ULS-92-023

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In and Around Chernobyl

927C0536A Kiev DEMOKRATYCHNA UKRAYINA
in Ukrainian 25 Apr 92 pp 1-2

[Article by L. Dayen, Ye. Yampolskiy]

[Text] Our Guest Is Yuriy Shcherbak, Minister of the Protection of Natural Environment

A few days ago we printed an autograph of the guest of DEMOKRATYCHNA UKRAYINA (Democratic Ukraine), Yuriy Shcherbak, on the title page of our newspaper. A famous Ukrainian writer and civic activist, doctor of medicine, now heading the Department of Nature, he wrote this: "At the threshold of the tragic Chernobyl anniversary, we should look towards the future—ours and that of our children and grandchildren. We should overcome all difficulties, all ecological turbulence, and all economic problems".

In fact, these words reflect the entire spectrum of themes covered in Yuriy Shcherbak's interview with our newspaper journalists.

Maps in Safes and Plutonium on the Streets

[DEMOKRATYCHNA UKRAYINA] Yuriy Mykolayovych (Shcherbak), you have been here before in our editorial office. Hopefully you did not forget your meeting with our team.

[Shcherbak] I appreciate the invitation very much. I have many friends and acquaintances here. Last time I was here, it was in 1986 as I remember, shortly after the Chernobyl accident. At that time we did not know much about it—about the tragic circumstances of this catastrophe. Because we lived in an atmosphere of total falsehood. It was permissible to write only about one side of the issues—the heroism. Obviously, there were honest, courageous, decent people who worked in Chernobyl. However, beside the heroism, there were other aspects.

Principally there was the most important problem of the common every day existence of these people. I remember, towards the end of 1986, I received a huge pile of letters from all over Ukraine, primarily from Kiev, Zhytomyr, and Chernyiv Oblasts stricken with this misfortune. These people wrote about the problems which upset them, deeply disturbed them. And we did not know how to respond to them, as if we were ashamed of something or afraid of it. Why? Because a taboo was placed on such themes.

I remember a letter from a World War II invalid from Cherkassy area, decorated three time with the Glory Medal. He wrote: "I have a liver disease, I have no stomach, and I eat only currants. Now I read that one should not eat currants because they accumulate a lot of radionuclides. How can I go on?" And I thought: What secrets are buried here? These are normal, vital problems, and people should be told how to behave under strange conditions.

[DEMOKRATYCHNA UKRAYINA] Now the curtain of secrecy has been lifted for many such questions. What new information can be given to our readers?

[Shcherbak] Yes, for four years people were not told the truth. It was kept under a secret and deposited in safes in form of maps. Today we have more or less accurate, although not final, data by far: Chernobyl hot spots have been registered in 11 Oblasts, 74 administrative Rayons of Ukraine, in 218 populated points—in the infected zone. I do not claim that the highest levels are everywhere. There is a gradation; there are higher and lower levels. What is meant is that these are the regions which have been officially designated as belonging to the radionuclide contaminated zone. To this you can add 5.5 million hectares of the territory, including 2 million hectares of forest. We do not know what to do with it; after all, we cannot cut trees there. Should we let these folks go into the contaminated forests? This is dangerous and morally not acceptable. Over 2.5 million of individuals live on such a territory.

[DEMOKRATYCHNA UKRAYINA] Yuriy Mykolayovych - this is evidently excluding Kiev?

[Shcherbak] Off course. Last week there was a meeting in Ivan Mykolayovych Salyi's office—he has been appointed Presidential Representative for Kiev. The topic of discussion was what to do with the city. We have been shown a map with plutonium contamination of the capitol. This contamination is measured in one-thousandth of curies. But plutonium is extremely hazardous substance, not just by its radiation level, but by its chemical composition. It covers Kiev territory in distinct hot spots. What should be done? Obviously it is possible to designate some of the city blocks as conditional evacuation zones. But, you understand: Let's say we designate one building - and then what? In addition, the following issues must be considered: The radioactive contamination may be on the roof and have practically no effect on anybody, or it may be on the ground where the children are running around. It may be on the trees, or it may be on the black top which can be washed clean.

Privileges for ... Jeans

[DEMOKRATYCHNA UKRAYINA] The readers inquire in their letters to the editor whether the Kievans will receive any privileges in connection with the Chernobyl problem?

[Shcherbak] Let's analyze the situation. If all Kievans were to be given privileges, the lines outside the stores would stay the same. Everybody would have a free transportation on trolleys or on busses, but this would only break down the municipal budget even more. The result would not be a happy one. What is the solution? I have proposed this back in 1990: First of all the children should be protected. This is the most sensitive group in our population. This is applicable primarily to those born in 1986. My granddaughter is in this category. These children are without protection. An adult organism is more resistant, with stronger immunity.

[DEMOKRATYCHNA UKRAYINA] And yet, obviously, the concern is not only about the children?

[Shcherbak] Yes. The second group—pregnant women. The older individuals should not be forgotten as well—those that cannot live without outside help and support. But, returning to the children, I will state that a vitamin supplement program for children is a must. In this respect all bureaucratic obstructions should be overcome. Another program—provide Kievans with reagents capable of removing radionuclides, such as pectin, sorbents. All of these items exist, but they are not accessible.

[DEMOKRATYCHNA UKRAYINA] Some people believe that compensation money should be given out.

[Shcherbak] To pay, what the people call grave money, would be amoral. Imagine, an individual gets such money and buys expensive jeans. Will that have any effect on his health? That is, if one considers privileges, it must be in the area of a complex program. A coordination body must be formed. For example, my ministry, which is concerned with ecology, should possibly take care of the Chernobyl issues,—but for this—there is the Minchernobyl (Chernobyl Ministry). The West cannot understand this: How can the Ministry of the Environmental Protection ignore the Chernobyl problem? But such is this division.

[DEMOKRATYCHNA UKRAYINA] What is the current situation in the 30-km zone?

[Shcherbak] In theory it is empty, dead. And in reality people live there. Yesterday a correspondent of the newspaper LIBERATION came to see me after just having visited the zone. He told me that he met women there living in these villages. However, there are 60 population sites outside the zone that are dead, already evacuated. They are surrounded with barbed wire—both in Zhytomyr and Kiev Oblasts. People from an additional 34 population sites will also be evacuated. This amounts to about 18 thousand families, over 40 thousand individuals. Can you imagine the magnitude of the social stress impacting on the budget? But one cannot deny this: Much is being done for the people.

[DEMOKRATYCHNA UKRAYINA] When visiting various plants, factories or farms, one often hears a lot about the Chernobyl tax. Its rate is not uniform.

[Shcherbak] In the past the Chernobyl tax was 19 percent, now it is 12 percent. The companies are groaning. The plant directors complain: We lay off people for three to four months waiting for the prices to rise so that we can release our products on the market. Production is choked. This is a serious social problem. The Supreme Council has lavishly distributed funds and promises to all. And there is no income. To continue this populist politics of distributing promises—that's the route to hyperinflation.

[DEMOKRATYCHNA UKRAYINA] Are you saying that all laws, including the Chernobyl law should be first evaluated from the point of perspective?

[Shcherbak] Exactly. In the United States even the most insignificant law is accompanied by a thick volume in which all aspects of its implementation are forecasted. Changing even one letter in a law could cost billions.

Which Diseases Are Commonplace?

[DEMOKRATYCHNA UKRAYINA] What are the medical consequences of the Chernobyl catastrophe?

[Shcherbak] According to statistical data, 150 thousand individuals were subject to the first iodine hit. I believe that this is a low figure because it was established within the Ministry of Health. Let us recall: the thyroid was examined but not in every case, by far. Obviously, Kievans received the iodine hit in one way or another; since they were on the streets at that time, they breathed the air and the dust, but again, not all of them did. Among those 150 thousands, there were 13 thousand children and 8 thousand adults who, according to dosimetry data, received huge loading doses to their thyroids. The real figures are probably ten-fold greater.

It is tragic that Polissya is traditionally an endemic zone for goiter: It is iodine deficient. Therefore, the thyroid greedily picks up iodine. After the accident iodine became available in huge quantities. We literally swam in iodine and captured it to an excess. Sick children began to show up. In some areas the incidence of thyroid cancers increased significantly.

[DEMOKRATYCHNA UKRAYINA] All of these are direct effects of the Chernobyl accident. However, there must be also some indirect ones?

[Shcherbak] All simple diseases, the commonplace ones such as bronchitis, pneumonia, and liver ailments take a different course now. They last much longer, they become more complex, turn into chronic ailments—difficult to treat. The reason for it is the immunodeficiency. A persistent 25 percent drop in immunity has been noted among the liquidators.

Obviously, this is not just because of Chernobyl. Life quality deteriorated in general during the last years. People are eating poorly; they do not consume vitamins adequately.

Let me quote some data from the Institute of Hygiene. The statistics are tragic. Although the data are not yet complete, there were 50 thousand more deaths in Ukraine than births. This is the first such event since the famine in 1933. The society is aging. There are 13 million retired individuals among the 52 million of our population. For each 1,000 individuals in the wage earning group, there are 700 retirees living in the cities and over 1,000 in the countryside.

[DEMOKRATYCHNA UKRAYINA] Which are the most urgent current social problems outside the one of Chernobyl?

[Shcherbak] I would place the Dnipro River as a second priority—the problem of drinking water. Only recently a special government commission was established by presidential decree. I have been asked to chair it. "Slavutych

"Association" is one of the components of this commission. Many mayors of the cities located on Dnipro river joined to save the Slavutych [an old name for the Dnipro river]. They reached a decision on the percentage of the budget that should be invested in preservation of this main water artery.

The Dnipro River actually is no more. There are six huge artificial water reservoirs. What should be done with them? Radionuclides are being deposited on the bottom of the Kiev sea. They have practically reached Kakhovske repository. If the process is left to continue like this, the entire river bed will become contaminated. Even though on a small scale, the accumulation of radionuclides continues. Starting in the 30-km zone, through the underground water table they enter the Prypyat and Dnipro Rivers.

We have calculated that 90 percent of the Dnipro river water is consumed during a dry year. A very serious situation may arise. The water is of very poor quality. In many places it does not pass the standards for potable water. I have just come back from the United States. Many Ukrainians live there in the state of Minnesota. The citizens of a small town close to the Canadian border cleaned up a river and organized a civic committee ... to protect the Dnipro river.

The third problem is the ecological disaster in the industrial heart of Ukraine. That is the Dnipro-Donetsk industrial area where 28 percent of Ukrainian population is living today. 40 percent of our national productivity comes from this area. It includes Zaporizhzhya, Dnipropetrovsk, Kryvyy Rih, Donetsk, Mariupol, Dniprodzerzhinsk, and a number of towns in the Luhanske Oblast. I know this territory well. Last week I visited it with some American senators. They were shocked after visiting Makivivsk metallurgical combine. But what can we do? We cannot let go of 30,000 workers.

From Sarcophagus to Kremlin

[DEMOKRATYCHNA UKRAYINA] In what condition is the sarcophagus today?

[Shcherbak] Initially statements were made that the sarcophagus was projected to last 30 years. This has no bearing on reality. If it should last for six to seven years—that would be very good. Engineers claim that it may blow up.

[DEMOKRATYCHNA UKRAYINA] Presently, as you know, an international competition was announced for the best design for a cover over the present sarcophagus.

[Shcherbak] Yes, I am one of the members of the evaluation panel. we are waiting for the proposals. This problem is a problem of the entire world. And therefore we need a close international cooperation in this area.

[DEMOCRATYCHNA UKRAYINA] Your documentary novel *Chernobyl* is very popular. Yuriy Mykolayovych, are you following up on the fate of the heroes of your book, do you intend to continue your work on this book?

[Shcherbak] I keep close contacts with some of the book's principals. One of them—Alexander Esaulov—is an honest, courageous individual working currently with the Ecological Fund established by our ministry. I do not believe it is worth it anymore to continue the book on the basis of the initial direct stories and impressions. Today one has to think philosophically.

I tried this approach. Last year, at the International Conference "Ecochernobyl" I presented a paper "Chernobyl as a Novel Phenomenon of World Civilization". This is a broad spectrum theme. Every year new material is added to it. Speaking about my literary plans, I would just like to note that American publishers approached me with concrete business propositions. I was asked to write my political biography based on current events. I toyed with the idea to write about ecocide in Ukraine—ecologic genocide. There is a great deal of material for it. But there is no time to write even a single line. My creative plans are a political history of Ukraine, the present day, Chernobyl, and ecology. Once I planned to write a book "From Chernobyl to the Kremlin". And now I would like to write: "From the Red Kremlin to the Blue-Yellow Ukraine".

[DEMOKRATYCHNA UKRAYINA] This question concerns the Rivne Nuclear Power Station. This is a very dangerous project located on Karstite bedrock. It is well known that there is not enough water in the Styr river for this station. Yet the fourth block is under construction."

[Shcherbak] Today this issue can be stated in the following way: the Chernobyl type RBMK reactors should be closed. The Leningrad [as published] accident showed that they are the most dangerous ones. Yet, you know it well that last winter we faced a virtual blockade in respect to Russian petroleum and Turkmen gas. This year the nuclear stations provided 40 percent of the total electric energy for Ukraine, even though they were projected to provide only 25 percent. It is obvious that we cannot close these stations right now. This would lead to national catastrophe. What the Ukrainian government should do is to organize international experts to evaluate how our nuclear power stations conform to the European standards. And only then we should reach concrete conclusions.

Prognosis Is Not in the Style of a Requiem

[DEMOKRATYCHNA UKRAYINA] "I live in a certain illusionary space of the government"—this phrase was used by Yu. Shcherbak to sum up his two years activity in the Supreme Council of the USSR, when he appeared a year ago in LITERATURNAYA GAZETA with a publication "Requiem for the Parliament". Having dissected in detail its visible and even more to the point invisible mechanics, he exhibited an exquisite gift for political pragmatism in predicting a series of conflicts. This led the Ukrainian journalists to request his opinion about the Ukrainian Parliament and its future.

[Shcherbak] Even though I am often unhappy with the performance of the parliament, not so much with the results, because they do exist to some extent, as with the methods, with the dominance of factlessness, often an atmosphere of savagery, I believe, that dissolution of the Parliament in any form would be undoubtedly damaging to independent Ukraine. After all, under any conditions this is the instrument of legitimacy of the government.

And should we destroy it rashly now, we could suffer considerably later. This would give a precedence to the enemies to initiate actions against Ukraine. I believe that raising the possibility of terminating the actions of the Supreme Council is absurd.

So I am certain that the Parliament should complete its program that it has set up—to accept the Constitution and the new Election laws. I think that sometime next year, when the political and economic situation in Ukraine will stabilize, after new elections, the governing functions should be transferred to a new organ—be it a two house parliament or whatever. Yet, a novation should be carried out carefully, peacefully. Presently the upper legislative organ has been formed, it exists already as a collective.

Beware of Populists

[DEMOKRATYCHNA UKRAYINA] You were a member of the initiative group that announced during the first post-putsch days formation of a social association "Democratic Reforms of Ukraine". After some time it reformed as a movement "New Ukraine". How do you view its characteristics and position on the political palette?

[Shcherbak] I do not want to brag about it, but for the sake of correctness, I should state that my proposal for its name has been adapted. I felt for a long time that something was missing in the political spectrum of Ukraine. Let's evaluate the RUKH role which did a lot, especially in the realm of a national awakening of Ukraine, in the area of institutionalized national state actions. However, when one attempts to carry out a strict political analysis, we will see that during the last entirely free elections, approximately 30 percent of the voters supported RUKH candidates. RUKH resources were exhausted with this electorate, including the high specific weight of the western Oblasts. Kravchuk received the votes of those who also worried about certain RUKH tendencies—it was much too heterogeneous.

And there is more. It became obvious even earlier: peoples' deputies, RUKH leaders work productively in the arena of the building of statehood, while in the field of economy they have huge gaps. They themselves acknowledged that at their convention. As we know, a vacuum cannot exist. It will be very unfortunate for Ukraine if the populists fill its government. (Such a danger exists in Russia, as a matter of fact, and it is also possible to occur in Ukraine). If anybody comes and tells you that I will give you everything and I will lead you, the stability will be disturbed.

As one result of all this and most of all due to the necessity for developing a model for the economy under conditions of a transition to a market economy, it is necessary to create the so-called middle class, because about 80 percent of our population is simply poor. And based on the world's experience, society simply cannot remain stable under such conditions.

Therefore, we must develop various enterprises and not super-monopolistic state capitalist companies such as

are being created now when ministries are converted into sort of corporations and that's about it. This amounts to state capitalism. From state socialism we seem to move towards state capitalism which may be just as bad. We will not be able to conquer this until we give property to the people, until we will have 80 percent (ideally) of the society as a middle class; This is the strategic plan upon which the "Nova Ukrayina" efforts are oriented.

Much of this has not yet been drafted in our movement, we meet often and in the midst of great arguments we plan our program. This is not simple. On one hand the businessmen who support "Nova Ukrayina" demand lower taxes. Lowering the taxes means a hit on social programs, a very undesirable act.

The populist element in our movement cannot be excluded. We face the crossroads at present. I say: "We should not become an elitist group". One journalist quipped: "Nova Ukrayina" represents candidates ready for government positions who have no masses behind them, and the people from RUKH are not ready to join the government even though they have the support of the masses". This was probably overdone because RUKH obviously includes capable individuals, but today the economic factor is decisive; let's be open about it. We are in the process of building independent Ukraine. Thank God. We have the symbolics, the army is being formed; all of this is necessary. However, if in a year or two Ukraine will not become a symbol of the prosperity of the masses, this idea unfortunately may be seriously challenged.

In the meantime, our neighbors to the north have everything, except that the chaos there is greater. Ukraine has been ruined, the resources exhausted; the oil has been pumped out, the gas has been burned out, but some solution must be found. We see it in our program.

Also, in our pronouncements we described a sort of corridor, quite wide, where many moderate people may fit. However, we are against national extremism, the pronouncement of superiority of any nation, group, class over others. We are against social extremism. We strive to consider all realities—first of all the national realities.

At present there is underway active formation of Oblast structures of "Nova Ukrayina". Characteristically, this process is very actively progressing in Halychyna. We are for friendly relations with RUKH. It is a pity to witness the hostility among Ukrainians which was manifested at the last RUKH convention. Obviously even "Nova Ukrayina" is not protected from conflicts.

The Minister Does Not Plan To Resign

[DEMOKRATYCHNA UKRAYINA] What is your opinion on the perspectives of Ukraine's participation in the Commonwealth of Independent States?

[Shcherbak] I am against any type of melodramatic measures of the door-slapping type. We should remain in the CIS to the last moment, defending our positions. For example, during the Kiev meeting of CIS heads,

Boris Yeltsin was questioned concerning the division of the former USSR inheritance. And everybody could see that Russia's leadership simply does not want it; in fact they have grabbed it all.

Hence, I believe we should stay in CIS. Of course, if a conflict should develop, we should leave, even though after that serious complications will develop for us. We should get ready for such an eventuality—for example an economic blockade. Therefore, on the basis of this, we need to pursue active international politics. Some of our people, even political activists, have grand illusions that the West is waiting for us. That is not so. A strong anti-Ukrainian campaign is being waged, especially through the efforts of Russian Embassy staff, as I have been told in the United States.

[DEMOKRATYCHNA UKRAYINA] We would like to clarify your position in regards to your possible resignation from the post of the minister, considering a rather insignificant government repayment.

[Shcherbak] I see two alternatives. Seeing how complicated it is, I could say that I am leaving. Another way is more painful, more complicated, even harmful to my health. That way is to do something, to fight day after day. I have chosen the second path even though my strength, the talent to compromise, is not limitless, obviously. Also, concerning ecology, so far the same residual principal exists. When finally I become convinced that all of this is hopeless, only then will I resign.

Let's get together, and together let us avert the ecologic catastrophe. I have high regard for your newspaper and I would like to cooperate closely with you.

Epidemiologists Deny Water-Disease Link in Kronstadt

927C0537A St. Petersburg NEVSKOYE VREMYA
in Russian 24 Apr 92 p 2

[Article by Mayya Krivoshey: "Epidemics in Kronstadt: The Debate Goes On"]

[Text] On 30 November of last year our newspaper published the article "Don't Drink the Water, Ivanushka, You'll Turn Into a Kid Goat." Its author, Mayya Krivoshey, described the results of her research: A close relationship exists between drinking water quality and the number of infectious diseases. The article evoked sharp protest from workers of the city center of the state epidemiological inspection and the mayor's public health committee. We published their letters together with Mayya Krivoshey's response. We hope that specialists in epidemiology will continue this debate.

Sour Cream Is to Blame for Everything

The author of the article "Don't Drink the Water, Ivanushka, You'll Turn Into a Kid Goat" asserts that bacteriologically unconfirmed dysentery, which makes up 25-30 percent of the total amount, hepatitis A, serious

meningitis, and even salmonellosis are all determined by the concentration of nitrogenous compounds. This news could certainly shock the unenlightened reader. But the way the author puts it, it sounds as if you can get infected by drinking untreated water. Is this true? We turn the floor over to Galina Mikhaylovna Bystrova, a specialist from the city center of the state epidemiological inspection and a physician in the water supply and water basin sanitary protection department:

The city water main has one supply source—the Neva River. According to laboratory research the nitrate concentration in Neva water is, on the basis of many years of observation, at a level of 1.5-3 mg/liter, which is significantly below the value permitted by GOST [All-Union State Standard] 2874-82 "drinking water" (45 mg/liter).

Presence of a large quantity of nitrates in drinking water can elicit toxic cyanosis (methemoglobinemia) in nursing children, but not infectious diseases (dysentery, typhoid fever, hepatitis, etc.).

Nor should presence of ammonia in tap water raise any apprehensions. Its concentration in Neva water is low (0.05-0.5 mg/liter).

Ammonia is deliberately added to tap water at water supply stations (the water is subjected to ammonia pretreatment). In this case it is not chlorine but chloramines that exhibit longer bactericidal action, thus guaranteeing reliable water quality not only at the water supply stations, but also in the network of water distributing mains. Ammonia pretreatment also has a deodorizing effect (removal of odor).

M. Krivoshey goes on to cite cases of dysentery epidemics in Kronstadt: In 1983 the number of illnesses was 3,319, while in 1988 there were 1,906 cases for every 100,000 people. And once again she associates this with low quality drinking water.

Let's go back to the official sources again, all the more so because in this case we are probably dealing with the same source of infection (?—Editor), and namely a conclusion of a commission of the USSR Academy of Sciences suggesting that the dysentery outbreaks mentioned in the article are of dietary origin (the document cites the same figures as Krivoshey.) "Dietary origin" refers to mass poisonings by infected sour cream that occurred in 1983 and 1988. By the way, not only inhabitants of Kronstadt, but also inhabitants of two other rayons also suffered—Sestroretskiy and Petrovoretskiy (though of course on a smaller scale).

Consequently, as improbable as it may sound, M. Krivoshey has chosen to confuse sour cream with water. For what purpose? I'll let the reader answer this question.

[Signed] G. Orlova, director, press center of the mayor's public health committee, and O. Parkov, director, epidemiological department of the city center of the state epidemiological inspection of St. Petersburg

It Would Not Be a Bad Idea To Check Out the Suggestions

And so, in the opinion of experts sour cream from the Boksitogorsk Dairy Plant produced on 14 September and put on sale on 15 September 1983 was the epidemic's "culprit." But the epidemic began on 19 September with an extremely short incubation period (24 hours). Does this mean that Kronshtadt residents who purchased the sour cream on 15 September held onto it for three days before eating it? Here's an even more amazing fact: Dysentery agent was detected in only one store (No 35), and that was on 24 September, after the epidemic had already peaked. In the opinion of experts this "is *indirect* (here and subsequently, emphasis is mine.—M. K.) evidence of the *possibility* of infection of this product in lots with *earlier* production dates." But then, why were pathogenic microflora not detected in the 14 samples of cultured milk products taken directly from the epidemic foci? Nor were they detected in 37 samples of dairy products from the Kronshtadt Dairy Plant. The experts should turn their attention to this inconsistency, and consider the dubiousness of their conclusions. By the way, in other things they are extremely cautious. It is written in the conclusion that sour cream is only "under suspicion." And from suspicion to assertion is a distance of enormous dimensions.

Incidentally, according to official data of the epidemiological station, 834 cases were registered, while the "Report on the Dysentery Outbreak in the City of Kronshtadt From 18 September to 26 September 1983" cites only 488 illnesses. Strange, isn't it?

The report was signed by very influential persons from the RSFSR Ministry of Health, the chief epidemiologist of the USSR Ministry of Health, and the chief public health physicians of the Leningrad city and oblast epidemiological stations.

Another "strong" argument "in favor" of sour cream can also be found in the "Report on the Dysentery Outbreak in the City of Kronshtadt From 17 September 1988 to 24 September 1988," signed by V. I. Kurchanov, Leningrad chief state public health physician and sent to the RSFSR Ministry of Health.

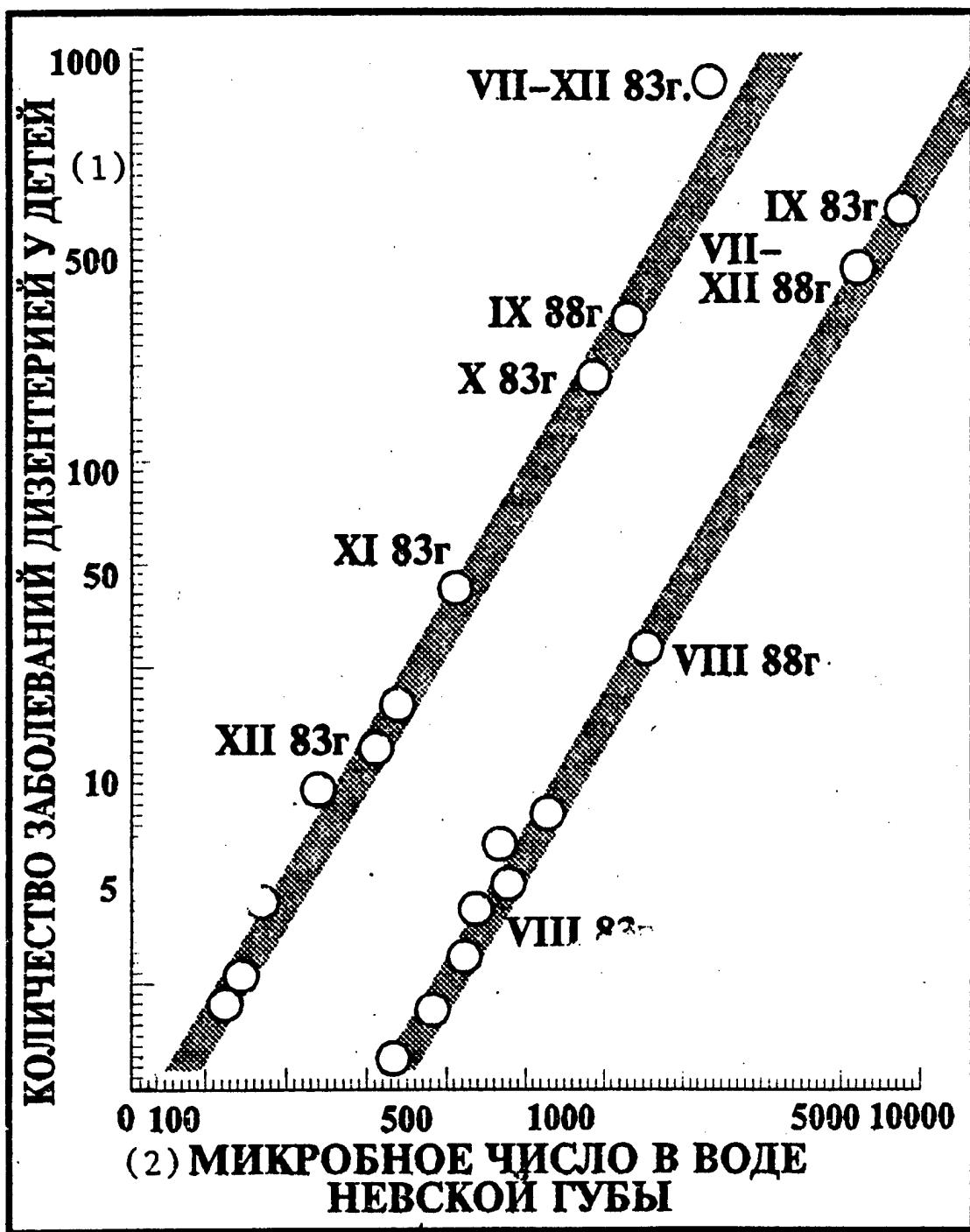
In September 1988, 556 persons (341 children) fell ill with dysentery. As in 1983, transmission of infection by contact is discounted. This time the "culprit" of the

epidemic turned out to be sour cream from the Plyussa Dairy Plant, sold in the trade network on 16-17 September. But the epidemic began on 15 (!) September among students of Vocational-Technical School No. 48 after "eating lunch in Dining Hall No 13 of the Kronshtadt Marine Plant," which gets its water from Neva Bay.

Pointing out that the incubation period is two days, the experts nonetheless note a sharp increase in the number of illnesses beginning on 17 September. Yes, these respected experts seem to have trouble with their arithmetic. Following their logic, it could be suggested that after purchasing the sour cream on 17 September, Kronshtadt's residents stored it until the 22d, since 303 persons fell ill together on 21-24 September. But even after the 24th, 23 persons fell ill.

But what is most remarkable is that in contrast to 1983, when a disease agent was detected, albeit very late and in only one store (and none was detected in the foci of the epidemic), in 1988 it was not found in a single sample of sour cream. It is probably for this reason that it is stated in the conclusions that "a lot of sour cream produced by the Plyusskiy Dair Plant, sold in the rayon on 16-17 September 1988, was the *suggested* transmission factor." Can you sense the difference between what is strict proof and what is a suggestion?

For some reason both documents analyze morbidity only in September. In the meantime 507 and 251 persons fell ill in October-December 1983 and 1988. What was the cause of illness this time around? Sour cream again? By the way, if the sour cream and milk are diluted with Neva water, there would be nothing surprising about this. The question that naturally arises is this: Why was water from the Neva Bay not tested for the presence of dysentery agent? We know that modern treatment methods do not destroy many viruses and microbes. Evidence that water from Neva Bay is predominantly responsible for dysentery attacks in Kronshtadt can be found in the relationship between the number of illnesses among children (another relationship holds for adults) and the microbial count in water from Neva Bay, shown in the figure. Turn attention to the fact that not only in 1983 and 1988 but also in other years the number of illnesses is determined by pollution of Neva Bay. It would be nice if our public health physicians would consider these data, rather than defending the honor of their positions.



Key: 1. Number of dysentery cases among children; 2. Microbial count in Neva Bay water

Kazakh Commentator on Women's Liberation and Its Consequences

927C0544A Alma-Ata *QAZAQ ADEBIYETI* in Kazakh, 3 Apr 92 pp 14-15

[Article by Zhangabek Shaghatay: "You Are the Kid of the Wild Goat: 1. All Turned Around"]

[Text] The knowledgeable think that prostitution is the world's oldest profession. Who knows, they may be right. However, we must in the future discuss what are the serious results of a lewdness soiling the name of a people, leaving permanent blemishes on a people's honor.

This being so, what we call our national culture is not just traditions and customs, what we wear, what we eat, the songs we sing at our festivals and get-togethers, nor the praise one person has for the other on this earth, nor after death the chorus of bitter grief. It is also the relationships of girl and boy, of husband and wife. It is a question of the otherwise-rare pure love written on the foreheads of individuals and of honesty towards one's spouse. It is even a question of the qualities, world view, and education of the future mother and father.

Several articles have been published in our paper touching on this important theme. This article by our reporter Zhangabek Shaghatay offered to the attentions of the reader proves, through facts, that our beautiful women have been born into a time when they must be cautious.

"Man is more powerful than all, it is man who knows how to control himself"—Seneca.

At the end of last year an inspired article was published by Natalya Kolesnikova in the NEDALYA WEEKLY entitled: "Plank Beds for Abandoned Children." In the article there was discussion of an announcement published in the newspaper AIF at the beginning of November by oculist-physician, people's physician, mother of two children Tamara Askerovna Marzoyeva who suggested that abandoned children not be abandoned in the steppe, or in a disgraceful box, but be abandoned on a plank bed in front of her own house. A promise was given by this in truth honorable mother, who has brought abandoned children into her own house, to keep the names of their "cuckoo" mothers secret. In order to make the people realize that this is all the truth we must give her address in full: Moscow City, Simonov Hill Street, House 24, first floor, apartment 30.

May heaven look down on you, Mrs. Tamara! You have made known to harsh people, with no other care than feeding the stomach, the superior image of a mother among Muslim people living far away in Moscow, and you have become a legend. Not long after that, the letters, which poured in each day from all corners of Russia (from our Alma-Ata also), to the house of that famous woman of good intention filled the postbox to overflowing. It is true that one of the greetings from among these letters makes the blood run cold, inspires in

the very soul fear of an evil-doer who will not shy away from any crime, and makes one very angry.

"During November my daughter Yuliya was born, length 50 cm, weight 3200 kg. The child is now in the hands of my mother in Moscow. I want to sell her to you and I will only sell her for money, at least 50 rubles. If you do not agree to this, I will be forced to lower the price to 30 rubles. Send the money to me at the address below. Moscow Oblast, village ... It is very easy for me to bring you the child. I live very nearby; it is only about 20 meters. If you do not want to buy her, I will then sell her to an acquaintance for 60 rubles. My mother is against giving up the child. However, do not be very late. I think that I am pregnant again."

"So if you send the money, I will bring the child to turn over to you towards the end of the month. Sveta."

To think that it was a mother who wrote this letter with her own hand!

We have reason to begin our discussion with a letter like this, utterly unheard of in human history, before or now, a letter that makes the hair of the reader stand on end and exceeds all bounds in slyness.

"A broad forehead, thick hair, a foot or a yard long, a white throat, a reddish face my dear, show yourself!

"Black eyes, curved eyebrows, to look is to feast the soul, the honey of your mouth, a red flower, and spotlessly white teeth.

"A straight nose, a slender waist, you are hesitant, as if to be struck by the wind; pale flesh so tender a flower which blooms specially"

Thus our ancestor Abay sang beautifully, and any people in the world worship the beauty of the girl described in an eternally unforgettable song. And they will continue to worship it. The eye-burning beauty and pure nobility of Nefertiti and Cleopatra, Aphrodite, of noble women of early times like Aspasia, Diana, Venus, Laura, and of a common person like Mona Lisa have become a legend from one era to the other. The eternal images of Juliet, Marilyn Monroe, who has radiated from the screen in recent times, Shirin, like the sun, Laila, who was injured by Mazhnun in her time, Nur Zhahan, who brought into being a monument famous in the world, namely the Taj Mahal, are examples for all peoples. It is even recorded in the Koran khadists that "heaven is beautiful, for that reason we love beauty." However, if we add intelligence to this swaying shapeliness, bright as the sun and like a slender willow, it would be all the more wonderful.

Was there not the "ruddiness of white faces as if it has been dripped onto snow" of beauties made enduring in our legends and tales, in our epics and lyric epics, or for example, were there not our beauties about which it has been said, "snow will flow onto black earth and when you see the snow, behold my flesh"? Were there not noble ones, originators of the Turkic peoples, such as Qurtqa who understood completely Tayburly's lack of 43

days; Aqzhunis, the support for Targyn, who, when dying, was of help to him; Qyz Zhibek, whose intelligence was equal to her beauty; Bayan Sulu, master of constant love; and Kunikey, like the sun, Sholpan, who would not bring into dispute two clans? We do not turn away from the nobility of mother Domalaq and Ulpan. What about Manshuk and Aliya, who scolded the enemy vehemently and showed energy like any man?

The example of one tells the whole story. Lazzat Ospanova, innocent victim of the harsh December incident of recent days that froze our people and made them shudder, was a woman born for the future of our people. Indeed, you know well that sad younger sister of ours. Lazzat has been well and truly depicted by one of our journalists. When they have heard of the great resolve of this remarkable younger sister, our comrades should develop an aversion for life and fall into a condition in which they are neither healthy nor sick for two years. The picture of the sad woman has been placed before us several times and we should weep greatly. The image of our innocent younger sister remains before our eyes to this day. black hair fall upon her shoulders, an utterly white throat, like that of an infant, throbs, a sad song is played on a dombyra... The image does not know what sad things fate has in store, and is one which never grew up. Indeed, the whole happiness of the people resides in the form of women like Lazzat. In fact it would seem as if there has begun to appear in recent years a strange, hitherto unheard of bravery in the behavior of Kazakh girls, who for centuries have impressed the people with courtesy, uprightness, education and training, and have done what is right. What is the reason? During the 1970's, when we kept ourselves distant from national traditions of education, was there not a severe illness, or, in any case, an hysteria within the essence of the emancipation called women's equality? If we go so far as to call it hysteria, only one people in the world, the Kazakh people, esteemed its women so much during this time and raised them to the skies. Kazakh women have not taken up the veil, unlike the countries where Islamic fundamentalism and fanaticism have entered into life too much. We know well from Kazakh history that we indulge our young ladies educated in the right manner to such a degree that a well-mannered young woman takes counsel not only with outsiders and with their coevals, but, when the chips are down, with their own parents. However, such freedom is imposed upon the women of no other people. The Kazakh, who considers the young woman like the stars about him, on account of their past experience in life, works to benefit as much as possible the women of some foreign people: brocade, silken cloth, silky material, silk, fine silk, velvet, fine velvet, velveteen, plush, scarlet cloth... All the beautiful, never-seen things of powerful, economically-advanced countries, all of these precious goods which just now we see only in museums and which the eye so loves, the things worn on the shoulders of the clothing of one out of every two Kazakh girls, old grandmothers still speak of with marveling. To this add hideously-expensive high-heeled shoes with embroidered tops. These beauties with

swaying beaver headdress, with the light of day reflected in the precious stones of an ornate sash, and with blouse flaps borne up by the wind, are not these steppe girls? These girls are "beavers in the lake," who, when grown up, are made from deeply red gold coins and are surrounded by wealth. They wear silver jewelry and silver rings and it is clear that their reputation is made to reach as far as the stars. It is a clever Kazakh who will exchange one bottle of perfume for a cow, one bar of scented soap for a sheep. If you have had enough of our description of such women, summon before your eyes the swans, a group of girls riding on pacers in a steppe replete with deeply green meadows. See, this is the image of our mothers, of our elder sisters.

Indeed, time moves on. There is both good and bad. A lucky bird flies over the heads of our dear Kazakhs. Our dear beauties who once tasting nothing but "fat meat and ham, honey and sugar," have cut off their thick and rich curls and put red square hats on their heads and fine silk blouses onto their shoulders that have stuck on like bitter thorns in their white flesh. They have put on slick commissar jackets which they have found and have attached awful pistols with yawning barrels to their belts.

It would seem as if the reading, viewing, and listening public, which has seen the articles frequently published in the pages of our newspapers and magazines, and considerations presented on television and on radio in recent years proving in a one-sided manner that Kazakhs take two or three wives, have begun to be drawn to this. There have even been those who have cited the Shariyat in this connection. In any case, all of this has grown out of thoughts and good intentions about the future of nearly 80,000 of our black-eyed younger sisters who have been unable to form families. In any case, there is no law that Kazakhs have to take two wives in their lives, but it does happen from time to time. While we know that it is stated in the regulations of the Muslim people, the most democratic people in the world, which say: "if you fight, God dies," that one may take four wives, this is not taken literally. The reason is that giving a girl who has been raised on "rich fat" and regards herself as "something special for her father and mother," as a second wife, is not only a sadness for a family, it is a stigma, an injury for the relatives, even for the clan. In fact, some very famous persons among the people, heroes, famous big chiefs of clans who have defended the people, have taken two or three wives. None the less, this was in most cases a necessary measure, a step directly depending upon political circumstances, or growing out of the need to bring clans together, clans which had come into dispute, or to preserve the peace of the nation. For that reason, while the terms "beybishe" and "toqal" (second wife) are wide spread among the Kazakhs, while the word "aqqoltyq" (third wife) is met with occasionally, it is very rare among the people and under those circumstances.

The advanced dialectic of civilized development and laws peculiar to a time bring forth new relationships in life. In particular, starting at the time of the October

Revolution, we "followed the line" and bypassed capitalism and thus, getting down from the rickety cart of "feudalism," we were just barely able to catch the "bright socialism" express. Not only were national conceptions and traditions thrown far away, but we were brought to irreparable breaks in the education of young ladies and in education regarding relations between the sexes and deprived of our valuable heritage. Social circumstances, economic relationships, girls leaving the village early, isolation from parents and from sisters-in-law to advise them, the lack of anyone to intercede for them due to the failure of daily relations as they once were, the appearance of new social centers, and the great concentration of women in production and higher education institutions, and in residence halls due to general urbanization, have brought into being altogether different conditions. Respect for elders, conscience, honor of spouses and shame are no longer being given the pride of place and other ideas and conceptions have taken place and gained ground.

Said Phythagorus: "Before others do nothing that will result in deception and shame. Your first law must be respect for one another." Gradually rejecting his myth from our thoughts, we have gradually fallen prey to the opium-dream, drunken thoughts of "freedom."

In particular, making every effort possible that "the son" not remain "separated from the people," we have forced ourselves to understand as "love," abuse and egotism. The images of such women and men are disseminated even in our literary books as "souls who have sought their own places in life, who have sought real love" (and it is true that there are hundreds of books like that) and all those marrying appear there as wretches who are "unhappy and have no interest in their spouses." Young women, who not so long ago harmonized with melody and song, who, when they had read something they particularly liked from some work of literature, became very excited, make us very sad that they, together with young men, wonder at erotic films in the videosalons of our beauties. Shortly before this, we were not at all amazed when we observed young women aged 15-16-17 and older avidly talking at bus stops and on buses as they headed straight to the Japanese erotic film "Empire of the Senses," which had a successful run in Alma-ata theaters. The latest achievement of make-up artists are propagandized in the streets to the greatest degree possible and when we behold black-eyed girls wearing tight trousers that are too short the eye is delighted and the danger which appears in the mind is not to be concealed. This is because, **if we rely on the evidence of sociologists, overly-made-up young women easily stir up the emotions and appear to be conspicuous in qualities leading to ready sex.**

No, we are not in favor of not allowing such films to be shown at all, or of not having such questions discussed at all in the pages of newspapers and journals. That "a dog is hostile to the place that restrains him," is something we are utterly aware of due to our inability to bring the 19th century back to life again. Before us is the 21st

century and our aim is to be accepted among the ranks of the civilized nations of the world. To this end we would not support those striving selflessly to introduce, to an excessive degree, Islamic fundamentalism, religious fanaticism, and oppressive reaction into the life of the Kazakh people, completely virgin territory for it. (Such persons have completely forgotten the fact that the Kazakh people are democratic by their very nature, that they are second to no Western or Eastern nation in individualism, that they enjoy freedoms and rights, and that religion does not have such great importance in the life of the people.) However, prohibiting is easy. However, we will have to think for a long time and think carefully as to whether or not this prohibition is proper. Whether it is true or not that we cannot remain apart from world development, it is fact that when the frontiers were closed pornographic publications came in as contraband like water seeping into the sand. At present, publications such as PLAYBOY are very precious, likewise, erotic magazines published in Germany are in the hands of every other person. Moscow films and videos such as "Little Vera" are found alongside the newspapers on the street. Even pornographic video films called "heavy sex," which enter the country by secret channels, are in the hands of young people in great quantities. (We must add to this devices, photographs and foreign publications teaching various forms of sexual relations.) These things make any prohibition near to nonexistent. Likewise, no one knows for exactly what purposes VCR equipment in the hands of individuals is being used, or perhaps all of this nastiness has been kept quiet but is gradually coming to light.

Moreover, if we pay attention to the fact that there are criminal gangs which have established themselves in our capital of Alma-Ata and are involved in rape and murder, likewise, that a pilot with a higher education, deciding on the role of the assassin, has made a habit of raping immature girls, and, be that as it may, that a docent has been moved to lead young girls astray in exchange for passing grades on exams. (We only know that this instructor of the Kazakh State University where many Kazakh girls congregate has now been fired. He should be brought to trial.) If we pay attention to the crime of the scarecrow who made a habit of raping and killing women in the community of this university (—we must remember that all are evil deeds done by persons of other ethnic groups!—) then it would seem that what we must discuss is not question of marriage, of respect for one's spouse, the formation of an "etiquette and psychology of family life," but defense of human beings from the hidden criminals among us. This is because, there are our women, who have become sources of depraved gain, our young female students who have entered the beds of foreign students voluntarily, including black students and those of strange cultures, in order to obtain foreign things. The first group of these have begun to bring babies (the illegitimate children arising from this) into the world.

Indeed, we must regard each woman as a future mother of the people, and must respect her accordingly. Whether

it is right or not that our newspapers always write about it when well-known singers acquire grandchildren or children and that this is shown on television and talked up on the radio and nearly made into a national festival, let us leave the matter as a current topic. There is likewise the psychological need for hundreds and thousands of mothers to bring a child into the world. In fact, it is well-known that nearly 50 percent of the Kazakh children born each year are defective or are sickly when born. However, if we note that a people cannot grow without children, you are missing the point if you think that we are simply repeating a fact already known. We are not psychic. However, research has shown such grief as the years pass as the birth of many children of unknown parentage and the increase of "natural orphans." Just now some 160,000 single mothers in the republic are raising "half orphans."

Likewise of 118 children in an orphanage in Zhambyl city, 75 are Kazakh, 18 Russian, 5 Tatar and the rest children of other nationalities. This fact must prove to us clearly what a cloud of danger lies over us and how it thicken with each passing day. Also, leaving aside the fact that this situation has destroyed national sensitivities, it relates to a city in the south which has preserved Kazakh traditions. The situation in other Kazakh cities and villages is such as to cause one to lose hope entirely. For example, we should bear in mind that there are more than 30 Kazakh children being raised in an orphanage in remote Sankt-Peterburg.

Let us circle around, from the child, having given birth, from the steppe, should the child lie in the steppe, it has fallen down, from the sled.

Thus goes the song. Our parents, who have comforted a new born with a careless tune, have made "a song to think about" in the future. Finally, it would seem as if that tomorrow has just begun. If there are from time to time younger sisters who are concerned about trying all of the interesting things of life today and about adhering to the fads, it might turn out that they not only know how

to cast a just-born infant out into the steppe and move on. Likewise, there is no one who knows exactly how many innocent children who should be born become, in secret or officially, victims of abortion. The truth is needed. It would seem as if the medical organizations of our republic are not troubled about the whole thing. This is demonstrated by the absence of such information to this day. Moreover, there is also AIDS, which is shaking the world. A famous English musician only recently became the victim of this incurable disease. It is even known that a group of children in Arzamas City contracted this disease due to the errors of physicians. The very first person to become ill with AIDS was a woman, a citizen of the former USSR, who had served as a translator in Tanzania. After returning home she had sexual relations with twenty men and five of them contracted the incurable disease. They in turn had sexual relations with 24 women and three of the women became ill with AIDS and one of them was a student in the ninth grade. Most people do not know this... It is, moreover, likely that AIDS will continue its string of such younger victims. "I transform quickly: My today fulfills the function of destroying my yesterday. In development I leap over steps for the most part. But in so doing, I skip no steps." Thus theorized Frederich Nietzsche. We must clearly understand that every development has its own law, that nothing is ever destroyed, that when the everyday law of development has been violated even a little, the harmonious system of development tends towards disorder, towards chaos.

During the 1960's the young people of Western countries brought to life a simple idea which made ordinary people's hair stand on end and quickly captured the whole world, the idea of "free love," of "freedom of conscience," of love free from any moral "fetters." However, we must remember that "what we think of as new is something known before, but forgotten." At the beginning of the 20th century too, fiery revolutionary-bolsheviks proclaimed generally "free love" and did so above all in terms of opposition to "rotten bourgeois morality."

**Prophylaxis and Treatment of Immunosuppression
Induced by Novel Herbicide Toluin**

927C0426D Tashkent UZBEKSKIY

BIOLOGICHESKIY ZHURNAL in Russian No 1,
Jan-Feb 92 (manuscript received 6 Mar 91) pp 32-34

[Article by S.I. Rikhsiyeva, S.R. Tulyaganov and O.A. Fedorenko, Central Asian Medical Pediatric Institute; UDC 616-084-615.37+591.2]

[Abstract] Guinea pigs were employed in an experimental therapeutic trial on the efficacy of undevit, a polyvitamin formulation, in the prevention and alleviation of immunosuppression induced by the novel organochlorine herbicide toluin used on cotton crops.

For prophylaxis, 175-250 g guinea pigs were pre-treated with 0.5 tablets b.i.d. before and for five days during toluin administration (3.0 mg/kg/day for five days). In mitigation studies undevit administration began on the sixth day and continued for 10 days after toluin administration. Immune monitoring showed that prophylactic treatment normalized various immune parameters (T, B, O lymphocytes, complement levels, lysozyme activity, blast transformation). However, after intoxication undevit was only partially effective in restoring T cell activity as tested in blast transformation with PHA. These findings indicate that undevit may have potential application in preventing toluin-induced immunosuppression. References 6: Russian

Growth and Selection of Ethanol-Tolerant Clostridium Thermohydrosulfuricum 39E Mutants

927C0339A Moscow MIKROBIOLOGIYA in Russian
Vol 60 No 3, May-Jun 91 (manuscript received
05 Feb 90) pp 472-478

[Article by N.A. Chuvilskaya, L.K. Goncharenko, B.F. Belokopytov and V.K. Akimenko, Institute of Biochemistry and Physiology of Microorganisms, USSR Academy of Sciences, Pushchino; UDC 579.852.13.017.6]

[Abstract] Sequential cultivation on media with increasing ethanol concentrations (0.1-0.6 percent) and γ -irradiation (30-90 kR) were used for selection of ethanol-tolerant *Cl. thermohydrosulfuricum* 39E mutants. The results showed that, in general, the basic growth parameters of the mutants were analogous to those of the wild-type *Cl. thermohydrosulfuricum* 39E. However, with increasing tolerance the lag phase of growth was extended from a control value of 3 h to 24 h for 2.0 percent ethanol tolerant strains, to 9 days for those tolerant of 6 percent ethanol. Maximum ethanol yields approached 112.5 mM with one mutant. Such ethanol tolerant *Cl. thermohydrosulfuricum* 39E strains lend themselves to establishment of mixed cultures with the cellulolytic, thermophilic *Cl. thermocellum* bacteria. Figures 4; tables 3; references 5 (Western).

Effect of Lovastatin on Yeast Growth

927C0339B Moscow MIKROBIOLOGIYA in Russian
Vol 60 No 3, May-Jun 91 (manuscript received
20 Mar 90) pp 479-484

[Article by N.S. Landau, N.A. Baranova, V.G. Kreyer, S.N. Vybornykh, L.I. Buyak and N.S. Yegorov, Biological Faculty, Moscow State University; UDC 579.282.23.044]

[Abstract] Screening trials were conducted with *Saccharomyces*, *Lipomyces*, *Rhodotorula* and *Sporobolomyces* yeasts to identify strains susceptible to lovastatin, an inhibitor of 3-hydroxy-3-methylglutaryl-CoA reductase (EC 1.1.1.34). The results revealed considerable variability in sensitivity to lovastatin, but also the fact that most sensitive isolates belonged to the *Rhodotorula* and *Sporobolomyces* genera. The latter may serve as indicator microorganisms in selection of lovastatin-producing species. Addition of mevalonate, an intermediate in sterol synthesis produced by the reductase, abrogated inhibition by lovastatin indicating the utility of the cells in studies of the mechanism of action of lovastatin on eukaryotic cells. Figures 3; tables 1; references 9: 3 Russian, 6 Western.

Effects of Antibiotics, Temperature, and pH on Growth of Clostridium Thermosaccharolyticum

927C0339C Moscow MIKROBIOLOGIYA in Russian
Vol 60 No 3, May-Jun 91 (manuscript received
29 Mar 90) pp 485-493

[Article by T.P. Mosolova, S.V. Kalyuzhnyy, N.G. Belogurova and S.D. Varfolomeyev, Biological Faculty, Moscow State University; UDC 579.852.13.04-017.7]

[Abstract] An analysis was conducted of the impact of temperature, pH and the antibiotics kanamycin and streptomycin on growth and metabolite production by *Cl. thermosaccharolyticum* DMS 571. The results showed that optimum growth conditions were represented by a pH range of 6.5-7.5 and a temperature range of 60-70°C. However, growth was obtained at pH 4.5-8.5 and a maximum temperature of 78°C. Addition of either antibiotic had the effect of increasing hydrogen production and diminishing the ethanol yield presumably due to redistribution of electron flow in glucose catabolism. Increasing or decreasing the pH from the optimum band resulted in a sharp reduction in end-metabolite production, including ethanol. However, variations in temperature had less impact on end-metabolite production. Figures 8; tables 3; references 13: 3 Russian, 10 Western.

Synthesis of Indoleacetic Acid by Rhizospheric Pseudomonas

927C0339D Moscow MIKROBIOLOGIYA in Russian
Vol 60 No 3, May-Jun 91 (manuscript received
30 Jan 90) pp 494-500

[Article by Ye.A. Mordukhova, N.L. Skvortsova, V.V. Kochetkov, A.N. Dubeykovskiy and A.M. Boronin, Institute of Biochemistry and Physiology of Microorganisms, USSR Academy of Sciences, Pushchino; UDC 579.841.11.017.7]

[Abstract] Screening studies for indoleacetic acid (IAA) production were conducted on 216 pseudomonads isolated from the rhizoplane of perennial grasses and potatoes. The results revealed that most strains were producers. In addition, some of the strains responded with an increase in IAA synthesis on incubation with tryptophan or tryptamine. Accordingly, these findings demonstrate that in some rhizoplanic pseudomonads production of IAA proceeds via the indolepyruvic acid pathway. Figures 5; references 14: 3 Russian, 11 Western.

Serotyping of *Azospirillum* sp. by Cell Gold Immunoblotting

927C0339E Moscow MIKROBIOLOGIYA in Russian
Vol 60 No 3, May-Jun 91 (manuscript received
13 Jun 90) pp 524-529

[Article by V.A. Bogatyrev, L.A. Dykman, L.Yu. Matora and B.I. Shvartsburg, Institute of Biochemistry and Physiology of Plants and Microorganisms, Saratov; UDC 579.835.083.3]

[Abstract] Cell gold immunoblotting was applied to serotyping various strains of *Azospirillum brasiliense* and *A. lipoferum*, using an indirect approach combining colloidal gold-protein A conjugates and rabbit antibodies against glutaraldehyde-fixed cells. Immunoblotting was found to distinguish among the different strains, and demonstrated weak interspecies relationships in certain cases. The results were not altered by heat pretreatment (100°C, 60 min) of the cells, confirming the carbohydrate nature of the epitopes under analysis. The carbohydrate nature of the surface antigens was also confirmed by 2D immunoelectrophoresis and specific staining. This study represents the first application of the cell gold immunoblotting method in bacterial taxonomy. Figures 2; tables 1; references 14: 4 Russian, 10 Western.

Methanotrophic Bacteria in Deposit Waters of Tatar SSR Oil Fields

927C0339F Moscow *MIKROBIOLOGIYA* in Russian Vol 60 No 3, May-Jun 91 (manuscript received 07 May 90) pp 558-564

[Article by I.A. Borzenkov, M.M. Telitchenko, Ye.I. Milekhina, S.S. Belyayev and M.V. Ivanov, Institute of Microbiology, USSR Academy of Sciences, Moscow; UDC 579.841.4.017.7:550.72(470.41)]

[Abstract] Bacteriologic studies on methanotrophic bacteria in deposit waters in the Bondyuzh and Romashka oil fields in Tatarstan demonstrated that they were introduced into the oil-bearing strata with the injection of surface waters. The highest counts—approaching 6 x 10E4 cells/mL—and greatest variety detected by immunofluorescent technique prevailed in the near-bottom regions of the injection wells. In the oil-bearing strata bacterial counts were low and metabolic activity was limited due to absence or very low oxygen levels. Figures 11 tables 5; references 16: 14 Russian, 2 Western.

Luminometer for Measuring Low-Temperature Bioluminescence

927C0426A Tashkent *UZBEKSKIY BIOLOGICHESKIY ZHURNAL* in Russian No 1, Jan-Feb 92 (manuscript received 27 May 91) pp 9-11

[Article by K.B. Dzholdasova, I. G. Akhmedchanov and Ye.Ye. Gussakovskiy, Institute of Physiology, Academy of Sciences, Republic of Uzbekistan; UDC 58.03:585.372

[Abstract] Current luminometers for bioluminescence operating at the temperature of liquid nitrogen have an error rate of ca. 20 percent, which is unsatisfactory in modern research. The high inaccuracy is attributed to

the fact that such instruments are based on fluorescent spectrometers and measure emitted light at an angle of 90° to the exciting beam. Accordingly, a luminometer was modified with a parabolic mirror to allow measurement of the emitted light at an angle of 35° in order to diminish light scattering. Trials with etiolated germinating seeds excited with 500-700 nm red and emitting at 700-800 nm demonstrated that the error rate of measurement was reduced to 3-4 percent, making it possible to analyze spectra in terms of intensity and shape. Figures 1; tables 1; references 2: Russian.

Microflora of Tailings Dump of Industrial Gold Extraction Plants

927C0426B Tashkent *UZBEKSKIY BIOLOGICHESKIY ZHURNAL* in Russian No 1, Jan-Feb 92 (manuscript received 27 Aug 90) pp 13-15

[Article by M.G. Sagdiyeva, Kh.M. Khamidova and Sh.T. Babadzhanova, Institute of Microbiology, Academy of Sciences, Republic of Uzbekistan; UDC 550.7.71:582.28.281.2(282.2.40)]

[Abstract] Studies were conducted on fungal flora of tailings dumps at three Uzbek gold extraction plants. Tailings derived after cyanation yielded large quantities of microscopic fungi, with *Penicillium* as the predominant isolate (16 strains, and 11 species). Other isolates in diminishing frequency were *Aspergillus*, *Trichoderma*, *Alternaria*, *Fusarium*, *Verticillium* and *Mucor*. The isolates were cyanate tolerant, but killed by chlorination. Tables 1; references 9: 7 Russian, 1 Slovak, 1 Western.

Microbe-Facilitated Leaching of Silicon From Quartz-Bearing Ores

927C0426C Tashkent *UZBEKSKIY BIOLOGICHESKIY ZHURNAL* in Russian No 1, Jan-Feb 92 (manuscript received 05 Nov 90) pp 16-19

[Article by P.T. Malakhova, E.V. Kovalenko and G.M. Chebotarev, Institute of Microbiology, Academy of Sciences, Republic of Uzbekistan; UDC 579.66:550.72]

[Abstract] An assessment was conducted on the efficacy of bacteria and fungi in leaching SiO_2 from quartz and quartz-bearing ores in order to better understand microbial factors in these geochemical processes. The results demonstrated that *Penicillium piscarum* and *Sprotrichum olivaceum* were among the more efficient microscopic fungi in solubilizing SiO_2 from quarts, while *Bacillus circulans* predominated among the bacteria tested. Studies with pyrite, tungstenite and scheelite revealed that in the case of these ores *Thiobacillus ferrooxidans*, *B. circulans* and a *Thiobacillus* sp. were the most efficient leachers. Tables 2; references 12: 8 Russian, 4 Western.

Mediation of Stress-Alleviating Action of Substance P by Hypothalamic-Pituitary Axis

927C0428A Moscow PATOLOGICHESKAYA
FIZIOLOGIYA I EKSPERIMENTALNAYA
TERAPIYA in Russian No 1, Jan-Feb 92 (manuscript
received 25 Jul 89) pp 12-15

[Article by L.A. Kozhevnikova, A.F. Kosenko and I.I. Drozdovich, Department of Digestive Processes Modulation, Scientific Research Institute of Physiology, Kiev State University imeni T.G. Shevchenko; UDC 612.826.4+612.432].018.577.175.82].0414.49:613.863

[Abstract] Histologic and ultrastructural studies were conducted on the hypothalamic-pituitary axis (HPA) of 180-200 g male Sprague-Dawley rats with gastric ulcers in relation to substance P (SP) treatment. In control rats intraperitoneal administration of 3 µg/100 g of SP activated HPA, while 12 µg inhibited HPA neurosecretory activity. Three hours of combined action of immobilization + electric stimuli was shown to be accompanied by stimulation of HPA and appearance of ulcers. However, pretreatment of the animals with 12 µg/100 g of SP 20-30 minutes before the ulcerogenic factors precluded activation of HPA and ulcer development. On balance, these observations implicate HPA in the mechanism of action of SP in alleviating stress. Figures 1; tables 1; references 13: 12 Russian, 1 Western.

Management of Experimental Hemorrhagic Shock With Superoxide Dismutase Infusion

927C0428B Moscow PATOLOGICHESKAYA
FIZIOLOGIYA I EKSPERIMENTALNAYA
TERAPIYA in Russian No 1, Jan-Feb 92 (manuscript
received 24 Apr 89) pp 29-31

[Article by V.Yu. Sergiyenko, N.I. Kochetygov, M.I. Agadzhanyan and M.A. Simonyan, Laboratory of Experimental Pathology, Leningrad Scientific Research Institute of Hematology and Blood Transfusion; Chair of Biochemistry, Yerevan Medical Institute; UDC 616-001.36-02:616-005.1]-092.9-085.384.105.2:615.272.014.425]-036.5

[Abstract] Male and female outbred rats (170-240 g) were used to simulate hemorrhagic shock via loss of 3 ml of blood under pentothal anesthesia for an assessment of the therapeutic efficacy superoxide dismutase (SOD). Intravenous infusion of 1 ml/100 g of SOD prior to treatment with low MW polyvinyl alcohol blood substitute resulted in significant improvement of hemodynamic parameters and blood chemistries, significantly exceeding the benefits of the blood substitute alone. The beneficial effects of SOD in hemorrhagic shock were attributed to inhibition of lipid peroxidation and prevention of myocardial damage during reoxygenation, thereby facilitating cardiac contractility and efficiency. Tables 2; references 11: 11 Russian, 1 Western.

Modulation of Clinical Course of Experimental Burns by Medium MW Peptides

927C0428C Moscow PATOLOGICHESKAYA
FIZIOLOGIYA I EKSPERIMENTALNAYA
TERAPIYA in Russian No 1, Jan-Feb 92 (manuscript
received 22 Dec 89) pp 31-35

[Article by I.A. Volchegorskiy, B.M. Valdman, N.A. Skobeleva, R.I. Lifshits and A.V. Zurochka, Chair of Biochemistry, Chelyabinsk Medical Institute; UDC 617-001.17-092.9-092-07]

[Abstract] Medium MW peptides (MMWP) derived from control dogs and dogs subjected to thermal burns (20-25 percent of body surface) were tested for their effects on outbred male rats and mice divided into control and thermal burn groups. The effort was designed to further define the role of MMWP in the clinical course and outcome of burns. On an overall basis the results demonstrated that MMWP from experimental dogs aggravated immunosuppression in rats and mice and accelerated mortality, with the mice shown to be the more susceptible species. Furthermore, canine MMWP fractions derived 24 hours after a burn were more toxic for the murine species than fractions isolated after 12 hours. However, fraction 4 MMWP (5.6 x 50 cm Sephadex G-15 column; elution vol. ca. 934.38 ml) obtained from control dogs appeared to possess therapeutic potential in alleviating splenomegaly and thymic involution. Figures 3; tables 1; references 20: 17 Russian, 3 Western.

Effects of A₁-Acid Glycoprotein (AAG) on Blood Rheology in Experimental Thermal Burns

927C0428D Moscow PATOLOGICHESKAYA
FIZIOLOGIYA I EKSPERIMENTALNAYA
TERAPIYA in Russian No 1, Jan-Feb 92 (manuscript
received 12 May 89) pp 35-37

[Article by V.V. Salomatin, A.G. Lyutov, A.Yu. Kholodov, T.M. Sobolevskaya and R.I. Lifshits, Chair of Biochemistry, Chelyabinsk Medical Institute; Immunoglobulin Laboratory, "Immunopreparat" Scientific Industrial Association, Ufa; UDC 616-001.17-092.9-085. 31:547.96]-036.8-07:616.151.4

[Abstract] To further define the biological role of AAG, an acute phase protein, its impact on blood rheology was assessed in outbred albino rats and mice subjected to third degree burns over 6 percent (mice) to 15 percent (rats) of the body surface. On balance, the data showed that administration of AAG after the thermal insult (mice—150 mg/kg, i.p., 2X, after two and 14 hours, or after two and three days; rats—50 mg/kg, i.v., after one and 13 hours) accelerated epithelialization by ca. 20 days and wound contraction, thereby facilitating healing and prolonging survival. In vitro studies with erythrocyte suspensions demonstrated that AAG enhanced deformability of erythrocytes, increasing their tolerance of mechanical stress and reduced hemolysis. These factors evidently also contributed *in vivo* to favorable blood

rheology, in conjunction with attenuation of platelet aggregation. On balance, the results indicate that early administration of AAG has a favorable impact on the clinical course of burn injuries. Figures 1; tables 2; references 14: 6 Russian, 8 Western.

Immunotropic Activity of Human A₁-Acid Glycoprotein (AAG)

927C0428E Moscow PATOLOGICHESKAYA
FIZIOLOGIYA I EKSPERIMENTALNAYA
TERAPIYA in Russian No 1, Jan-Feb 92 (manuscript
received 16 Mar 89) pp 37-39

[Article by A.G. Lyutov, R.F. Sadykov, S.V. Sibiryak, S.F. Khaybullina and V.A. Aleshkin, No 1 Chair of Pharmacology, Bashkir Medical Institute, Ufa; UDC 615.31:547.96:577.112.858].015.4:612.017.1]

[Abstract] An analysis of the immunotropic properties of human AAG [A₁-Acid Glycoprotein] on mice led to the conclusion that it may be best regarded as an immuno-modulator. Intramuscular administration (250-750 µg/mouse) to outbred mice for seven days before i.p. infection with a 1.5 LD₅₀ dose of *Pseudomonas pyocyannea* improved the seven day survival rate to 80 percent from 0 percent control rate, placing it on par with prodigiosan. A single intraperitoneal injection of 100 µg to C57BL/6 mice bearing a syngeneic melanoma B-16 implant arrested tumor growth, although in doses of 10 and 1000 µg/mouse it was ineffective. Similarly, 100 µg administered to recipient CBA mice significantly prolonged survival of skin allotransplants from C57BL/6 donor mice; lower or higher doses of AAG were ineffective. These preliminary findings indicate that AAG deserves further attention as a potentially valuable agent. Figures 1; tables 2; references 14: 4 Russian, 10 Western.

Syringes from China Infected with Staphylococcus
927C0525A Moscow NEZAVISIMAYA GAZETA
in Russian, 16 Jun 92 p 6

[Article from ITAR-TASS: "Syringes Turn Out To Be Infected"]

[Text] Almost 30,000 disposable syringes purchased in China and transferred to children's hospitals in the Jewish Autonomous Republic will be destroyed. What were believed to be sterile instruments turned out upon inspection to be contaminated with staphylococcus. Doctors in Birobidzhan warned their colleagues from oblast rayons about the dangerous imported acquisition.

Invalids Picket White House
927C0525B Moscow NEZAVISIMAYA GAZETA
in Russian 12 Jun 92 p 6

[Article by E. Voronenkova: "Bureaucrats Shut Off Oxygen to Invalids"]

[Text]

People in Wheelchairs Picket the White House. For several hours at the beginning of last week dozens of invalids, patients of the Central NII [scientific research institute] for Prostheses and Prostheses Construction (TsNIIPP) set up pickets at the intersection of Korovinskiy and Dmitrovskiy Highways. People in wheelchairs traveled more than three kilometers and were ready to spend not days, but hours, on the road. This desperate act produced a tremendous public response and became the basis for an open conflict between the institute's administration and the Russian Ministry of Social Protection. The reason for the invalids' demonstration was the financial crisis at the institute, as a result of which its director, Oleg Feldman, ordered an end to hospitalization of patients as of 28 May 1992 and "systematic discharge" as of the beginning of June. Out of 470 patients under treatment, the institute plans to keep only 120-140 "serious" patients. But at this time there are no guarantees that the doctors will be able to provide full medical care to these patients either.

The institute has always existed on financing from the state budget (self-support accounted for only 10 percent) and was under the jurisdiction of the RF [Russian Federation] Ministry of Social Protection. As of early 1992 systematic funding of the institute by the government was cut off, and for the past two months the state hasn't paid the institute a kopek. During this time the institute administration spent all its cash, including what it earned from self-support activities. The financial problem deteriorated with each day, and now has reached its culmination: Because of the institute's insolvency, deliveries of food, medicines, bandages, oxygen, and even electricity have been stopped. As the institute's director said, "The process of staff dispersion has gotten

out of control. The most valuable specialists have been and are being let go, and entire departments are being eliminated."

On 4 June the institute's labor collective approved an open statement to President B. N. Yeltsin and Supreme Council Chairman R. I. Hasbulatov, in which they described the situation.

The most frightening thing is that state officials remembered the handicapped only after the desperate people set up pickets on the road. Only after a report on the invalids' protest demonstration did I. Alekhin, first deputy minister for social protection, come to acquaint himself with the state of affairs at the institute.

The goals and demands of the picketing handicapped were not limited to rescuing the institute. There are no official statistics in Russia on how many Russians are handicapped and... O. Feldman believes that in terms of this data our country is on par with the United States, where approximately one in ten is handicapped. But we are on par only in terms of statistics. In terms of prosthetic and orthopedic care, only the minimum demands of the population are being met. The two thousand prostheses supplied this year are a drop in the bucket in Russian terms. Oleg Feldman believes that there is no realistic possibility of elevating the entire prosthetic-orthopedic industry. This would take a lot of money and effort (Russia has only 70 prosthesis-producing enterprises, and last year the industry produced 600 rubles worth of devices per worker). But the institute can serve as a base for expanding handicapped care. However, at this time the institute can serve only "paying" patients. Emotions at the institute are boiling, and patients are fully resolved to set up a tent encampment at the Russian Parliament and the RF Ministry of Finance. Only lack of transportation has kept them from this action. Thirty years ago in the United States, Vietnam war invalids set up a tent encampment at the White House, and Congress finally passed a law on the handicapped. Will the acts of protest by the handicapped in Russia end in the same way?

German Medical Supply Contract Under Investigation

927C0525C Moscow KOMMERSANT in Russian,
No 26, 22-29 Jun 92 p 3

[Article by Valeriy Stolnikov, Sergey Gornov: "Ministry of Health Warns: Russia Can't Afford Philips"]

[Text] Last week the Committee for Control of the Use of Hard Currency and Credit of the Russian Federation Supreme Council began to investigate a deal between the Russian Ministry of Health and Philips Medizin Systeme (FRG) to deliver medical equipment and technologies worth 0.7 billion German marks to Russia. The deputies suspect that the contract is unfavorable to Russia.

On 25 May 1991 the Russian Ministry of Health and Philips Medizin signed an agreement under which the Germans will supply medical equipment and set up production at Russian defense plants. A consortium of German banks gave a 1 billion mark loan for this project. Russia will pay back the loan by exporting diesel fuel.

As the *Kommersant* correspondent at the Russian Ministry of Health reports, even Minister Andrey Vorobyev has doubts about the merits of the agreement. At the minister's request the Moscow Development Institute (MDI) audited the agreement. The auditors concluded that the contract is unfavorable to Russia, since Philips is selling medical equipment and technology at higher than world prices and that the re-equipped plants will be too dependent on foreign deliveries. The Ministry of Health agreed with this conclusion and added that cooperation with Philips will have a harmful effect on the growth of the domestic medical industry, whose own developments will be halted.

Wolfgang Rosenbauer, Philips Medizin Systeme's commercial director for Eastern Europe, disagrees with the result of the audit. He assured a *Kommersant* correspondent that the contractual prices do not exceed the world level in the slightest. As proof, Rosenbauer gave these arguments: Prior to approval, the project was examined in the parliaments of both countries and was even discussed personally with Boris Yeltsin and hundreds of Russian experts.

According to estimates by Jan van Dijk, Philips' Moscow representative, "The project is extremely advantageous for Russia." Van Dijk attributes opposition to the project exclusively to a "change of leadership in the RF Ministry of Health and the influence of political conflict."

Bella Denisenko, Deputy Minister of Health Care of the Russian Federation, people's deputy to the Russian Federation Supreme Council, and member of the Committee on Health Care, shared with the *Kommersant* correspondent her prediction for the development of the conflict around Philips. She doesn't exclude the possibility that certain materials from the audit will be transferred to investigative agencies.

Law Passed on Organ Transplants

927C0525D Moscow *KOMSOMOLSKAYA PRAVDA*
in Russian 26 Jun 92 p 4

[Article by O. Volkov: "Law on Organ Transplant Passed"]

[Text] On June 24 the Chamber of the Republic and Nationalities passed on first reading the law "On Transplantation of Human Organs and Tissues." Discussion of the need for quick passage of the law first began two years ago: Too many little companies and cooperatives appeared, wanting to earn a little money (primarily hard currency) on the misfortune of others by selling the organs and tissues of the dead. According to our data, by the way, despite the simply terrifying abundance of such cases recently, none of the offended relatives has succeeded in bringing criminal charges or winning a suit.

Naturally, transplant specialists are not pleased with this situation—they save lives by transplants, not by reselling organs—and it is their reputation that suffers first from criminal scandals.

Latvia was the first former Soviet republic to pass a law prohibiting the use of organs and tissues without permission. Finally, the Committee on Health, Social Security, and Athletics of the Supreme Council of the Russian Federation, which has repeatedly criticized doctors and the minister of health himself for inaction, submitted its draft. Only the first reading of the law was passed; naturally there will be revisions and amendments, but it already defines the underlying principles of transplantation: respect for the interests of the donor (living or dead), operations on a non-commercial basis, and medical institutions that are not dependent on transplant specialists and their interest in organ transplant operations.

One cannot say, however, that the draft's authors have completely removed the obstacles and considered the interests of all parties.

There are three models for donorship in the world: A living citizen states in writing that he agrees to be a donor in case of death, he receives a donor's card, and is entered into a computerized data bank (United States). The complete opposite is the refusal model: A living person must legally formalize his non-consent (almost all of Europe). The third model—anonymous—represents the status quo here until recently, when doctors asked only one another for consent to harvest organs.

The law calls for a transition to the second model—refusal. But it is not clear how, where, and in what form one can register one's refusal. Admittedly, the law stipulates that it may be replaced with a word from the relatives of the deceased, but, as experience shows, getting in touch with them in those few precious hours—sometimes with a transplant even minutes count—is often impossible.

It is precisely this incompleteness in the law that still prevents giving any practical advice.

Release of Top Secret Data on Semipalatinsk Radiation Promised

927C0525E Alma-Ata *KAZAKHSTANSKAYA PRAVDA*
in Russian 23 May 92 p 1

[Article by Yu. Shindler: "Minister Promises To Make Public Supersecret Information Soon. We'll Wait."]

[Text] The Ministry of Ecology and Bioresources of the Republic of Kazakhstan held a press conference. S. A. Medvedev, Minister of Ecology and Bioresources, described his department's work and Kazakhstan's environmental problems. The audience paid the most attention to the announcement of the creation of a Radiology Administration within the Ministry. As we know, radiation contamination in the republic is very serious. In addition to the Semipalatinsk Proving Ground, nuclear explosions have been carried out at 25 sites in the

republic. China has also made its contribution to radiological contamination of the southern regions of Kazakhstan—it has exploded 15 plutonium bombs, the most contaminating in the atmosphere (only one such was exploded at Semipalatinsk).

The problems of the Aral Sea and Semipalatinsk and the international participation of ecologists in their solution were discussed at the briefing, since these seemingly regional ecocatastrophes may be the first link in a global ecological collapse.

In conclusion, Medvedev answered journalists' questions. The minister's announcement that supersecret data on the current status of radiological contamination in the republic is being prepared for publication in Semipalatinsk aroused general interest. And in Baykonur the effect of rocket launches on the environment is being studied in order to finally tell the truth about them.

The minister promised to make meetings with journalists a tradition.

Mobile Cardiology Unit in Kemerovo

927C0525F Moscow *DELOVOY MIR* in Russian
11 Jun 92

[Article datelined Kemerovo by Marina Kushnarev: "Cardiologists Have a Broker"]

[Text] An unusual bus appeared recently on the streets of Kemerovo: A mobile cardiology unit travels to the city's leading enterprises—those that have signed contracts for medical care with the "Kardiologiya" training-science-production enterprise. The development of this structure in the medical world is a rather new phenomenon. While doctors living off the budget are on strike everywhere today demanding raises, the experience of those who don't wait for charity from the budget, but get legal status and begin to earn money by entrepreneurial activity, is especially interesting.

Such people include "Kardiologiya's" director, Leonid Barbarash, doctor of medical sciences and professor. Twelve years ago his department in the Kemerovo Oblast Hospital specialized in the development of biological prostheses to correct valve failures in the heart. Over the years several models of prostheses were developed that passed certification at various cardiosurgery centers in this country. More than 270 people aged 15 to 56 were operated on. The maximum survival rate—98 percent after nine years—was recorded in people more than 40 years old; the minimum—85 percent after five years—in people less than 25 years old. The staff of the Kemerovo Cardiocenter is working to improve the prostheses by improving their reliability and life. Together with scientists from the Bakulev Institute for Cardiovascular Surgery, they have developed a new model of valve that was recommended for series production by the minister two years ago.

"Kardiologiya" has become involved in this same complicated and still unusual activity—manufacturing heart valve xenobioprostheses.

According to planning department director Natalya Arkhipova, about 500 can be produced per year. The enterprise now has agreements to supply bioprostheses worth hundreds of thousands of rubles to heart surgery centers in Alma-Ata, Novosibirsk, and Tyumen Oblast.

This year the price of a heart valve bioprostheses rose from 850 to 3800 rubles. This is to be expected: The cost of raw materials, preservatives for processing it, and suturing material, without which the valve cannot be built, have risen. To get to the point, domestic industry still has not learned to produce suturing material for bioprostheses. Leonid Barbarash recently returned from the United States, and preliminary documents on establishing a joint venture with American bioprostheses companies were signed. The partners helped with suturing material, and "Kardiologiya" is now supplied for a minimum of two years. Making high-quality valves requires another valuable raw material—pig aortas. This soft tissue is used to make the biological part of the prosthesis. The needed raw material is still being supplied from integrated meat processing plants, and after the appropriate modeling and processing with preservatives, it is sent to the laboratory where nurses suture the valves by hand under sterile conditions. The company plans to combine the production stage with raising the animals.

One department at "Kardiologiya" researches and studies new preservatives that prevent mineralization and infection of the bioprostheses. The enterprise has close contacts with chemists developing such preservatives.

In addition to producing prostheses and providing paid medical services to the public, Kemerovo's "Kardiologiya" engages in business activities. Initially it helped equip many city and oblast hospitals and clinics with needed laser equipment and instruments. The enterprise's commercial department engages in brokerage activity. Recently, for example, they acquired several shares in the oil giant Hermes. The department is already earning "Kardiologiya" a profit, which will ultimately go to the production of bioprostheses. "I am in favor of such trade, which serves the core business," says Leonid Barbarash.

"Kardiologiya" telephone number: (8-384-22) 53-50-34; fax: 29-82-82

Sanitorium Serves Elite

927C0528A Moscow *NEZAVISIMAYA GAZETA* in Russian 2 Jun 92

[Article by Vitaliy Kolbasyuk: "Winds of Change Don't Rustle the 'Pines' Much"]

[Text]

Ho Chi Minh was treated at this sanatorium after a heart attack, but now the new bourgeois are trying to repair their health.

The Elite Aleksey Kosygin's three-room suite on the seventh floor of the "Sosny" [Pines] Sanatorium is still empty. The former chairman of the Council of Ministers used to love to come to this elite corner of the Moscow suburbs, to which the best road, still lined by military cordons, leads. Now you will rarely run into a government "ZIL" or "Chayka" at the doors—guests more and more often come in foreign cars with private license plates. Companies and concerns have bought 70 percent of the rooms in the fashionable sanatorium.

In 1934 construction of the special sanatorium began in a large pine grove on the banks of the Moscow River in Odintsovsk Rayon. Fifty-eight years later, the "Sosny" Treatment Complex, which still includes 119 state-owned dachas, covers a territory of 1040 hectares.

All this belongs to an association of children's institutions, health resorts, and the Hospital Complex of the KhOZU [Property Management Department] of the administration of the President of the Russian Federation. Several hundred managers on the presidential staff oversee these huge properties. As Viloriy Yefimov, general director of "Sosny" said, the sanatorium has not taken money from the state budget for more than two years. It survives by renting rooms and former state dachas in "Uspensk" and "Gorki-10."

A single room costs 1700 rubles per night; a two-room suite, 3000; a three- room suite, 5000 rubles. There are almost no vacancies, but you won't run into guests on the park's footpaths. The bourgeois who have paid for accommodations come in the evenings to spend the night or for a few days off. The tennis court is empty, and there is no one on the gorodki field where Aleksey Nikolayevich loved to knock down the figures.

But as you walk through the park, you might meet his comrade-in-arms in the CPSU Central Committee, the former chairman of the Moscow City Executive Committee, communist V. F. Promyslov, as well as the former chairman of the Oktyabr'skiy Rayon Council, democrat I. I. Zaslavskiy. They were treated here on special passes—1700 rubles for 24 hours. S. Ponomarev, former candidate for membership in the Central Committee Politburo, and economist P. Bunin stopped by for a rest. Certain members of the NG [NEZAVISIMAYA GAZETA] staff have also stayed there.

Director Yefimov explained that one-third of the 200 rooms have been taken by the President's KhOZU for their own needs. The prices for passes this year are not exactly cut-rate. But the rent for dachas and rooms from businessmen cover the costs for the "privileged" guests, of whom there were six in mid- May. The vacationers are disgruntled only by the fact that they have to pay cash in the dining room, just like in a restaurant. Food is not included in the price of a pass. Businessmen who visit the reserved rooms only rarely insisted on this. The rich

count their money—renting a dacha for a year costs 5 million rubles—not everyone can afford it. For some reason, people from the stock exchanges haven't yet fallen for this piece of paradise. Therefore financial experts from "Menatpa," scientists from the Shatalin Fund "Reforma," and employees of little-known associations and stock companies gladly vacation here. The list is very long, and it's nice to realize that our country has so many rich people.

The representations from Kazakhstan and Kirgiziya rent state dachas in Uspenskiy, and Armenia joined them the other day. In the beginning of this year President Yeltsin generously signed a 25-room wing of the sanatorium over to the Yakutiyans.

The elite's conservatism is felt everywhere in "Sosny"—in the wide carpeted corridors, in the winter garden, and in the very proper service personnel.

Chief physician Veniamin Naydenov has worked at "Sosny" for 23 years. He knows what ailed members of the Council of Ministers, the CPSU Central Committee, the general designers, and the leaders for foreign communist parties. The primary ailments were high blood pressure, heart disease, and various psycho-emotional disturbances. In his opinion, a person who attains power is already sick—sick with power. Naydenov is a neuro-pathologist and believes that the main ailment is hardening of the arteries of the brain caused particularly by heavy information loads. The chief physician said that until recently the sanatorium had the best post-discharge rehabilitation program in the USSR.

The young bourgeoisie are also ill, concludes Naydenov on the basis of his neurological practice. "In five years I've seen people with latent psycho- emotional disturbances. Externally they're all healthy, but it's worth it to examine them... Major intoxication of the body—many smoke and drink."

But Naydenov believes that these people will live long, since it is their money he wants to use to modernize the complex diagnostic equipment and keep the skills of the sanatorium's doctors on a high level.

Now everything is quiet. Heart disease patients are expected from June through August. Admittedly, the director recalls that there have never been more than 110 people staying there at the same time.

New Center for Treatment of Strokes in Moscow

**927C0528B Moscow NEZAVISIMAYA GAZETA
in Russian, 28 May 92**

[Interview with A. Kochetkov, director of Anti-Insult Association on High Incidence of Stroke-Related Deaths in Moscow: "New Center Ready To Cure Moscow of Strokes. But 7,500 people in the Capital Still Die From It Each Year."]

[Text] Information on the drastic increase in the mortality rate from stroke in Russia has gone unnoticed in

the overall flow of reports on the catastrophic state of certain areas of health care. Moreover, for the last several years the curve for vascular diseases has steadily moved upward. According to data from Moscow Emergency Medical Care, the number of calls from stroke victims has increased by a factor of 1.5. One-fourth of those surviving a "cerebral catastrophe" die within a year, and about 75 percent of those who survive are invalids for the rest of their lives.

A pattern close to that in Moscow is seen in Russia's other major cities, where the sick rate from stroke is 2-2.5 times higher than in rural areas.

"Moscow needs an integrated program for fighting strokes," believes Andrey Kochetkov, director of the "Anti-insult" Scientific Medical Association. "This program, developed by specialists at our association, calls for creating a prevention and rehabilitation center with branches in all Moscow districts. We are ready to undertake the organization of special sociolegal services and to help people who have suffered a stroke adapt to work and everyday life. Today these patients, who could still work, are left to their own devices. This country is not training doctors in rehabilitation."

"Implementation of the program would cut the mortality rate from strokes in Moscow by one-third and reduce the recurrence rate by about as much. In a year, a center equipped with the most modern equipment could provide care to about 15,000 patients. But, as you understand, all this depends on financial support for this project. If money is found, the program will go into operation. If not, people will still die from inadequate medical care. Initially about 48 million rubles and \$3 million are needed—a sum several times less than the losses due to strokes."

[Bayduzhii] Under current conditions, when the budget for medicine is coming apart at the seams and hospitals are acutely aware of the lack of the most necessary medicines, can one really expect that the state will be able to allocate even a portion of this amount?

[Kochetkov] We have no illusions, therefore we have turned not only to the state, but to various commercial structures, for money. But there are problems whose solutions don't require large sums of money. For several months the Association has been trying to acquire its building, which is suitable for treating patients, and the usual bureaucracy is costing human lives. In the future we will be able to earn part of the money we need ourselves: the association is already treating patients under contract with medical insurance companies.

[Bayduzhii] Doesn't it seem that the high cost of your services will make them unattainable for most of the population?

[Kochetkov] We have to look reality straight in the eye. Those institutions and enterprises whose employees want to use the services of the highest-class specialists have to pay. Today there are hundreds of medical cooperatives in Moscow, and they use state medical institutions as a base for

providing medical services. The city doesn't get a cent. We're already prepared to implement our own program for treating strokes in Moscow. And the money that will be allocated from the budget will go to treat the low-income and poorly protected layers of the population. Their care will be free.

Shortage of Dialysis Facilities in Russia

927C0528C Moscow NEZAVISIMAYA GAZETA
in Russian 29 May 92 p 6

Report by Elena Voronenkova: "Association Seeks Its Own Money"

[Text]

While People Are Dying

At this very moment thousands of patients suffering from incurable forms of kidney disease may die because they cannot get the necessary medical help. Over the past 30 years our health care system has not created a purposeful state program of dialysis and transplantation, and only 6-7 percent of the needs in this area are being met. Because of cutbacks in social programs, respected centers are in a very serious situation: there are not enough medicines or dialyzers, and transplant operations have almost been stopped.

Recently the Russian Ministry of Justice received certificates of registration of the Inter-regional Dialysis Association and the Inter-regional Dialysis Fund.

As the facts demonstrate, the new organizations have to contend with a lack of understanding and recognition of the vital importance of problems related to incurable kidney diseases. Our officials are apparently preparing to get away with formal replies. The Ministry of Finance of Russia sent a letter to the Vice President of the Dialysis and Transplant Fund, Zoya Igonkina, dated 17 April 1992. In it, agency head A. V. Koltsov states that in March, 1992 the Hard Currency Control Agency allocated the required hard currency for purchase of dialyzers units for the "artificial kidney" machine. In addition, the Russian Federation's Ministry of Health will provide hard currency allocations for purchase of imported equipment, medicines, and dialysis filters. It's already the end of May, and the Russian Ministry of Health can't report on the size of these allocations and purchases, if they have been made.

Draft Decree on Pharmaceutical Prices

927C0528D Moscow NEZAVISIMAYA GAZETA
in Russian 14 May 92 p 6

[Unattributed article: "Drugs and Prices"]

[Text] Because free prices have exceeded controlled retail prices and there is no money for subsidies, pharmaceutical warehouses and the warehouses of the "Rosmedtekhnika" Association have accumulated medicines worth more than 3.5 billion rubles and medical equipment worth 1.1 billion.

For this reason the pricing committee and the Russian Ministry of Health prepared a draft decree for the RF [Russian Federation] government, "On Revising the Procedure for Retail Price Formation for Drugs and Medical Devices."

Manufacturers will sell them at free wholesale prices, but with a profit no higher than 30 percent. Local executive bodies will set the pharmacies' margin. Drugs listed as vital or important must be sold at 50 percent of their free retail prices. The list has been sent for approval to the Ministry of Health with the consent of the Ministry of Finance and the Ministry for Social Protection, and the Ministry of Finance will determine and approve the procedure for subsidizing the pharmacy system. The list of disease categories for which and groups of people treated as outpatients to whom doctors' prescriptions should be given at a discount or for free is also to be expanded.

Law Prohibits Organ Donations by Unrelated Living Donors

927C0528E Moscow NEZAVISIMAYA GAZETA in Russian 15 Jul 92 p 6

[Article by Elena Voronenkova: "Our Organs Will Belong to Us Even After Death"]

[Text]

The Russian Supreme Soviet Has Passed a Law on Transplantation

Human organs (kidneys, livers, bone marrow) have been transplanted for a long time. However, according to estimates by scientists at the NII [Scientific Research Institute] for transplant science of the RAMN [Russian Academy of Medical Sciences], the transplant service is evolving in a very unsatisfactory way. Only 3 percent of the demand for such operations is being satisfied. Transplants are done at only 12 Russian medical centers. In 1991 there were 1000 kidney transplants (the most common form of transplant) in the Russian Federation, while there were 30,000 in the USA.

In the beginning of July of this year, the RF [Russian Federation] Supreme Soviet passed the law "On Transplantation of Organs and Tissues," in the preparation of which lawyers, transplant experts, resuscitation experts, and anatomical pathologists participated. According to the director of the NII for transplant science, Valeriy Shumakov, the text of the law and its articles have the approval of more than 60 major medical institutions in the Russian Federation, and the articles are based on nine guiding principles regulating human organ transplants recommended at the 87th session of the VOZ [WHO] in 1991. The content of the law comprises legal protection for recipients and donors, a prohibition on and legal liability for the sale of donor organs, and the licensing of medical institutions and specialists engaged in transplants. The law permits transplantation of paired organs from living donor relatives with a direct genetic link and prohibits them from living non-related donors. Any petition from relatives, as

well as any certificate of refusal to donate signed while the donor is alive will keep the organs from being taken from the deceased.

The law "on transplantation" is supposed to go into effect during December, 1992. The USSR Ministry of Health's instruction permitting unlimited harvesting of organs from corpses for medical purposes without permission is still in effect. The law "on transplantation" may become only a legal base for the transplant service, but there are still many problems in this area. The transplant NII's report says, "Without efficient organization of donorship, the evolution of transplant science in the RF is impossible. Donorship efforts are now on a semi-legal basis... The issue of organizing donorship lies within the jurisdiction of the Ministry of Health—only the ministry has the right and ability to organize this service and monitor its operation, but the ministry is doing almost nothing in this area."

Russian doctors apparently believe that the creation of a special donor agency under the Ministry of Health will solve most of the problems. Perhaps then the ministry and scientists will begin to cooperate, but for now the petitions from ministry employees and scientists are too contradictory. Valeriy Shumakov says that he does not know of any money allocated by the government to the NII, while the Ministry of Health reports that state financing for this field has not been cut, but increased. Recently the Ministry of Health's Specialized Medical Care Administration and the Ministry of Finance signed a document under which the costly operations "will be allocated additional funds." In the last quarter they amounted to 2 billion rubles. In addition, the Ministry of Health has announced that a base program has been developed, under which all residents of Russia will be eligible for organ transplants at no cost, paid for from the state budget. At the same time doctors claim that they survive only thanks to self-supporting activity and no improvements are foreseen. For example, the transplant science NII performs operations on foreign citizens. The Ministry of Health officially permits the acceptance of 20 percent "commercial" patients, of which 6 percent are foreigners, while the foreign press contains scandalous reports about Russian transplant specialists and medical institutions selling human organs abroad, including accusations directed at Valeriy Shumakov. We were able to learn that the RF attorney general has studied this issue and apparently refuted the accusations. We have not yet been able to familiarize ourselves with investigation documents, and Valeriy Shumakov did not consider it necessary to respond to the accusations against him, saying that the newspapermen "wrote nonsense." He admitted that there were proposals from certain foreign companies and that doctors initially agreed, but then it was explained to them that the sale of human organs "goes against humanity," and they cut off negotiations.

Radioprotective Action of Manganous Chloride in Gamma Irradiation of Cotton Seeds

927C0426E Tashkent UZBEKSKIY
BIOLOGICHESKIY ZHURNAL in Russian No 1,
Jan-Feb 92 (manuscript received 12 May 91) pp 41-44

[Article by A. Nigmanov: "All-Union Order of Lenin and Order of Peoples' Friendship Scientific Research Institute of Cotton Breeding"; UDC 633.511:531.531.027.34

[Abstract] Rootlet and shoot length of germinating cotton 175-F seeds were monitored in relation to pretreatment with manganous chloride and subsequent gamma irradiation (40 kR; 38 R/sec). The results demonstrated that pretreatment of the seeds with 1 and 3 M manganous chloride exerted a radioprotective effect. However, treatment of irradiated seeds three-six days after germination was without benefit.

Estimation of Pulmonary Threshold Limit Values for Radionuclide Mixtures Released at Chernobyl Accident

927C0427A Moscow RADIobiologiya in Russian
Vol 32 No 2, Mar-Apr 92 (manuscript received
10 Jul 91) pp 163-171

[Article by A.K. Sukhoruchkin, Dosimetric Control Administration, "Prip'yan" Scientific Industrial Association, Chernobyl; UDC [614.34+331.821]:621.039]

[Abstract] An assessment was performed on the validity of Cs-137-based human radiation spectrometry in estimating pulmonary exposure to radionuclides via the respiratory route. The studies specifically addressed personnel in the Chernobyl area at special risk to respiratory ingress of radionuclides deposited in the topsoil. The preferential use of the Cs-137 indicator is based on its high energy gamma emission which renders quantification easy. However, after internalization alpha and beta emitting radionuclides are radiobiologically more significant, and relatively low pulmonary levels of Cs-137 may be accompanied by high concentrations of other radionuclides in the lungs. Consequently, assessment of total pulmonary radionuclide exposure from Cs-137 levels requires considerable caution since it may lead to significant underestimation of actual radiation exposure. In addition, high pulmonary levels of Cs-137 are more consistent with ingress via both respiratory and oral routes. Tables 4; references 17: Russian

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Stimulation of Post-Irradiation Thrombopoiesis by Low-Intensity Lasers

927C0427B Moscow RADIobiologiya in Russian
Vol 32 No 2, Mar-Apr 92 (manuscript received
21 May 91) pp 241-243

[Article by V.M. Zyablit'skiy, I.E. Ingel and M.A. Kaplan, Scientific Research Institute of Medical Radiology, Russian Academy of Medical Sciences, Obninsk; UDC 614.7:539.1.047]

[Abstract] Therapeutic trials were conducted with an IR laser on 20-25 g (CBA x C57Bl)F₁ mice subjected to 7.0 Gy whole-body gamma irradiation to assess the effect of laser intervention on thrombopoiesis. Preliminary studies showed that laser irradiation (890 nm; 80-3000 Hz; 6, 10 or 14 min/day; four or seven days) had no effect on control mice. Laser therapy two days after gamma irradiation revealed that only high frequencies (600-3000 Hz) were effective in enhancing thrombopoiesis. On balance, maximum benefit was obtained with 6 min of an 3000 Hz IR laser for seven days. These findings suggest that IR laser therapy may be useful in controlling hemorrhage and other hematologic complications in radiation sickness. Tables 2; references 7: 6 Russian, 1 Western.

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Correlation Laser Spectroscopy of Serum Samples: Novel Approach to Identification of Disease and Toxicity Risk Groups in Ecologically Anomalous Areas

927C0427C Moscow RADIobiologiya in Russian
Vol 32 No 2, Mar-Apr 92 (manuscript received
25 May 91) pp 247-255

[Article by N.V. Klopov, A.D. Lebedev, I.I. Nisevich, V.A. Noskin, L.A. Noskin, and V.S. Omelchenko, Leningrad Institute of Nuclear Physics imeni B.P. Konstantinov, Russian Academy of Sciences, Gatchina; UDC 574:539.074]

[Abstract] Correlation laser spectroscopy (CLS) was applied to the analysis of 2750 serum samples obtained from control subjects and patients diagnosed with malignancies, autoimmune diseases, acute viral infections, metabolic disorders, and industrial poisoning. The findings showed that control sera obtained from well individuals displayed a bimodal (20 and 100 nm) particulate distribution, whereas in subjects with pathological conditions the peaks were shifted, less clearly defined and contained intermediate fractions. For example, the patterns indicated that Chernobyl area subjects were at risk of hepatitis, while Kiev and Leningrad cohorts were at risk of industrial poisoning. Accordingly, the preliminary data suggest that CLS serum patterns may be useful in identifying various risk groups. An additional advantage of this method is its simplicity, speed (5-8 min), and small serum sample (10-15 μ L) requirements. Figures 6; tables 3; references 5: Russian

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Experimental Assessment of Aromatic Carboxylic Acid Amides as Radiosensitizers

927C0427D Moscow RADIobiologiya in Russian
Vol 32 No 2, Mar-Apr 92 (manuscript received
29 May 91) pp 261-265

[Article by V.G. Vladimirov, I.I. Krasilnikov, Yu.Ye. Blyayev, I.N. Morozova, O.V. Arapov and O.F. Alferova, Scientific Research Institute of Military Medicine, Ministry of Defense, Russian Federation, St. Petersburg; UDC 615.849(045)]

[Abstract] Screening studies were conducted with novel and conventional amides of aromatic carboxylic acids—derivatives of benzene, naphthalene, piperidine and quinoline—to identify new radiosensitizers that may have potential in enhancing radiotherapy of malignancies. The trials were performed with 18-20 outbred, white male mice treated i.p. with 2.5-3.5 mg/kg of the agents 30 min before sublethal 6.5 Gy gamma irradiation. Efficacy of the agents was monitored in terms of depression of endogenous splenic colony formation eight days later and in *in vitro* inhibition of poly (ADP-ribosyl) polymerase in thymic nuclei. The results yielded the following ranking as radiosensitizers: benzamide = 3-aminobenzamide > 3-acetylaminobenzamide and 3-butyrylaminobenzamide-nicotinamide (I) = 3-nitrobenzamide > 8-quinolonecarboxylamide > 3-methoxybenzamide > 3-trifluoroacetylaminobenzamide (II). Of the new agents, both I and II were particularly noteworthy because of their low toxicity (LD_{50} = 1.2-2.0 g/kg). Tables 1; references 14: 8 Russian, 6 Western.

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Efficacy of Plantain Extract in Combination With Radiotherapy in Tumor-Bearing Animals

927C0427E Moscow RADIOPHYSICS in Russian
Vol 32 No 2, Mar-Apr 92 (manuscript received
4 May 91) pp 266-270

[Article by T.G. Razina and Ye.P. Zuyeva, Scientific Research Institute of Pharmacology, Tomsk Scientific Center, Russian Academy of Medical Sciences, Tomsk; UDC 577.391:616.322]

[Abstract] Therapeutic trials were conducted with plantain extract ("succus plantaginis") for its efficacy in limiting radiotherapy-induced leukopenia. The study involved outbred male mice bearing ascitic NK/Ly cells and (CBA x C57BL/6)F₁ male mice injected with Louis lung carcinoma cells, subjected to 2.0-4.0 Gy x-irradiation, and then treated intragastrically with 5.0 ml/kg of the extract for 7-15 days. Three days after irradiation in the NK/Ly group leukocyte counts were significantly higher in 3.0 and 4.0 Gy radiotherapy + plantain mice, with the volume of malignant cells reduced 9-fold, in comparison with the radiotherapy-only mice. Analogous results were obtained with the Louis carcinoma cohort, with the incidence of metastases dropping from 100 percent in the radiotherapy group to 79 percent in the combined therapy group. In the latter group plantain effects on leukocytes were more variable, but after 12 days the leucocyte counts in the combined therapy group was 1.5-fold

greater than in the radiotherapy group. Accordingly, these observations indicate that the plantain extract—already in wide clinical use—may also find acceptance in clinical oncology. Tables 3; references 15: 12 Russian, 3 Western.

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Reproductive Potential of Male Mice Protected From Supralethal Gamma Radiation by Extract Mixture From Archangelica Officinalis and Ledum Palustre

927C0427F Moscow RADIOPHYSICS in Russian
Vol 32 No 2, Mar-Apr 92 (manuscript received
4 Sep 90) pp 271-275

[Article by A.A. Narimanov, Institute of Theoretical and Experimental Biophysics, Russian Academy of Sciences, Pushchino; UDC 577.599:539.1.047]

[Abstract] Intraperitoneal administration of a mixture of extracts of Archangelica officinalis and Ledum palustre was seen to enhance the survival and reproductive potential of 30 day old outbred male mice challenged with 7.5 Gy gamma dose. The animals were pretreated with 0.3 ml of the mixture five to 15 minutes before irradiation and mated with a single unirradiated female mice 30 days later. The 30 day survival rate of extact-treated mice was 70 percent vs. 13 percent for untreated control male; of the 12 surviving males 11 produced progeny, with the one failure attributed to an infertile female. In comparison with control litters the pups were entirely normal although exhibiting a greater degree of motor activity and a 2.3:1 female:male sex ratio rather than the 1:1 control ratio. In addition, in the experimental group births occurred 50-70 days after mating vs. 21-27 days in the control group. The latter difference was attributed to slower maturation or temporary sterility of the experimental males. Finally, progeny of the experimental males displayed greater radioresistance than the control progeny. Irradiation of 30 days old progeny with an absolutely lethal dose of 8 Gy yielded a 90 percent death rate in the control mice within three to seven days, whereas in the experimental group death was delayed to nine to 15 days (60-70 percent), corresponding to a mean survival time for the two groups of 5.2 and 9.9 days, respectively. These observations strongly indicate that the extact possesses factors which protect the genome from radiation injuries. Figures 1; tables 2; references 16: 15 Russian, 1 Western.

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Hemosorption in Radiation Injuries: Removal of Quinoid Radiotoxins as Efficacy Factor

927C0427G Moscow *RADIOBIOLOGIYA* in Russian
Vol 32 No 2, Mar-Apr 92 (manuscript received
17 May 91) pp 276-279

[Article by V.A. Kopylov, F.A. Revin, M.E. Vagabova, and A.M. Kuzin, Institute of Cell Biophysics, Russian Academy of Sciences; UDC 577.391.547.963]

[Abstract] The demonstration that radiation-induced quinoids (radiotoxins) are a major factor leading to death in radiation sickness led to an assessment of the efficiency of their removal by SKN-2M, an absorbent commonly used in hemoperfusion. In vitro studies with columns filled with active carbon SKN-2M revealed very high absorption coefficients (240-396) for such quinoid compounds as tyrosine, DOPA, phenylalanine and dihydroxyphenylalanine. These observations were confirmed with extracts from gamma-irradiated animal and plant tissues with high quinoid levels. These findings, then, suggest that the beneficial effects of hemosorption in radiation sickness are at least in part due to elimination of quinoids. Figures 1; tables 3; references 10: Russian

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Localization of Radioactive Cesium in Bovine Muscles

927C0427H Moscow *RADIOBIOLOGIYA* in Russian
Vol 32 No 2, Mar-Apr 92 (manuscript received
21 Jan 91) pp 284-287

[Article by N.L. Dolgiy, V.M. Danilova, and V.S. Tregubov, Ukrainian Scientific Research Institute of Agricultural Radiobiology, Chabany, Kiev Oblast; Kiev State University, Ukraine; UDC [574.539.163]+621.039.7]

[Abstract] Ingress of Cs-137 into the food chain has led to a study on the localization of this radionuclide in beef. The results demonstrated that almost 70 percent of Cs-137 is found in sarcoplasmic proteins and ca. 13 percent is bound to myofibrillar proteins. Binding, however, is not firm and stable complexes with the proteins are not formed. On storage, Cs-137 dissociates from muscle proteins while its binding to membranous components increases. Figures 1; tables 2; references 4: 3 Russian, 1 Western.

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